Engineering Library
PERIODICAL RECEIVED FEB 2 1916
UNIV. OF ILL. LIBRARY

Telephony.

THE AMERICAN TELEPHONE JOURNAL

PUBLISHED EVERY SATURDAY.
TELEPHONY PUBLISHING COMPANY.
VOL. 70, No. 9.

CHICAGO, FEBRUARY 26, 1916.

SINGLE COPIES, 10 CENTS
YEARLY, U. S. A., $3; CANADA, $4;
ALL OTHER COUNTRIES, $5

$3.00

The S-R Private Service ATTACHMENT

prevents "listening in" on grounded or metallic party lines, increases capacity of line, saves batteries, etc.

S-R Private Service TELEPHONES **$12.50**

Write for Particulars

S-R Electric Co.

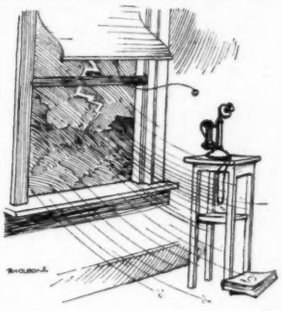
30 North La Salle Street
CHICAGO, ILLINOIS

EVERSTICK ANCHORS

You will go around in a circle, if you are looking for a better anchor than the EVERSTICK—there's a reason.

Write for Literature.

Everstick Anchor Co.
St. Louis, Mo.



More Work for the Trouble Man

Unless It's a

"RAVEN BRAND"
Moisture Proof Cord

Supply Sales Department

Automatic Electric Co.

Chicago, Ill., U. S. A.

Makers of 750,000 Automatic Telephones
We Have Branches in

New York—46 W. Broadway. Portland—Chamber of Commerce.
Minneapolis—1391 Nicollet Ave. Toledo—Second Nat. Bank Bldg.
Buffalo—331 Ellicott St. Pittsburgh—First Nat. Bk. Bldg.
Dallas, Texas—909 Busch Bldg.

American Steel & Wire Co.'s

W. & M. TELEPHONE WIRE

AMERICAN STEEL & WIRE CO.

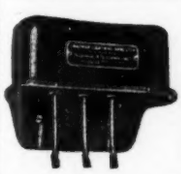
Chicago New York Cleveland
Worcester Pittsburgh Denver

CEDAR POLES

Wire or write for delivered prices

NATIONAL POLE CO.
ESCANABA :: :: MICH.

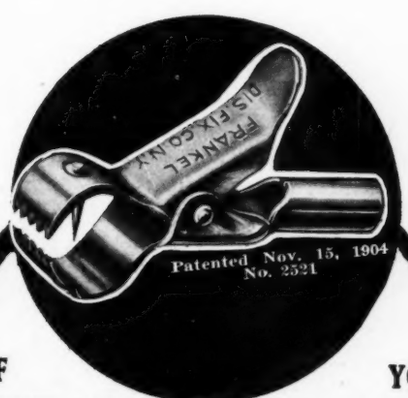
"I wish I had used"
Chapman Lightning Arresters



"I did, they are great"

Write today to

MINNESOTA ELECTRIC CO.
MINNEAPOLIS, MINN.



IF YOU

HAVE A FRANKEL TESTING CLIP

You can make a "test" in one-tenth of the time required to skin a wire, and neither does the wire or insulation suffer any damage.

The point pierces the insulation and makes a perfect test. Can be used constantly, yet the point will never dull.

Prices:

No.	Less than 12	12 lots	100 lots	500 lots	1,000 lots
2521	20c	12½c	11c	10c	9c Ea.

Net F. O. B. New York, from your supply house.

Frankel Display Fixture Co.
733 Broadway New York City
or Western Electric Company, All Branches

FORT WAYNE PRINTING COMPANY
FORT WAYNE, IND.

Makers of Telephone Directories

Write For Prices

Telephone Cables
ALL SIZES AND CAPACITIES

Hard Drawn Copper Telephone Wire.
Galvanized Iron Telephone Wire.
Siemens-Martin and High Strength Strands.

AMERICAN ELECTRICAL WORKS
PHILLIPSDALE, R. I.

CHICAGO 112 W. Adams St. CINCINNATI Traction Bldg. NEW YORK 165 Broadway

---

Have You Heard?

The M. W. Dunton people at Providence, R. I., claim to make the best soldering flux in the world and they back their claim with a generous sample can.

Say Nokorode when you "call them."

Better Rates and Dividends

can be obtained without investing more money in your plant or increasing maintenance expenses by installing

The Leich Automaphone

The AUTOMAPHONE is the only telephone that provides the equivalent of Common Battery service on a Magneto switchboard.

The AUTOMAPHONE lends dignity to the office or home by giving up-to-date big-city telephone service.

Not a single change is necessary in the wiring of your switchboard or lines to use the AUTOMAPHONE.

To call central you simply take the receiver off the hook. No crank to turn. Now wouldn't your subscribers appreciate that? Certainly, and they'll pay for that kind of service, too.

Fill in the coupon and we'll tell you more about the AUTOMAPHONE, also show you how other companies have obtained better RATES and DIVIDENDS by its use.

Cracraft, Leich Electric Co., Genoa, Ill.

Tell us more about the AUTOMAPHONE.

Name.....

Company.....

Address.....

Cracraft, Leich Electric Co.

Main Office and Factory, Genoa, Ill.

Western Branch, Kansas City, Mo.

Telephony.

THE AMERICAN TELEPHONE JOURNAL

Comprising Telephony, American Telephone Journal, Telephone Weekly, Telephone Magazine, Telephone Securities, The Telephone, Sound Waves

PUBLISHED WEEKLY BY THE TELEPHONY PUBLISHING COMPANY
MONADNOCK BLOCK, CHICAGO

H. B. McMEAL, PRESIDENT AND EDITOR. H. D. FARGO, SECRETARY AND TREASURER. J. C. KELSEY, VICE-PRESIDENT AND FINANCIAL EDITOR.
S. R. EDWARDS, MANAGING EDITOR. J. R. HASTIE, VICE-PRESIDENT AND ADVERTISING MANAGER. W. E. RAYMOND, SUBSCRIPTION MANAGER.

Entered as second-class matter September 4, 1908, at the post office at Chicago, Ill., under act of March 3, 1897

Volume 70
Number 9

CHICAGO, SATURDAY, FEBRUARY 26, 1916

Subscription—10 Cents a Copy
$3 a Year U. S., Cuba and Mexico
$4 Canada, $5 Other Countries

The Wisconsin Supreme Court on Physical Connection

This week the Wisconsin Supreme Court passed upon the LaCrosse physical connection case. In doing so, the constitutionality of the Wisconsin law relating to physical connection was sustained, thus settling the contention of the Bell company that the statute and the order of the Wisconsin Railroad Commission are unconstitutional, unless an appeal is made to the United States Supreme Court.

It was in the early part of 1911 that the Wisconsin physical connection law was enacted. It provided that: "Every utility for the conveyance of telephone messages shall permit a physical connection or connections to be made, and telephone service to be furnished, between any telephone system operated by it and the telephone line operated by another such public utility, or between its toll line and the toll lines of another such public utility, or between its telephone system and the telephone system of another such public utility, whenever public convenience and necessity require such physical connection or connections, and such physical connection or connections will not result in irreparable injury to the owners or other users of the facilities of such public utilities, nor any substantial detriment to the service to be rendered by such public utilities. The term 'physical connection' as used in this section shall mean such number of trunk lines or complete wire circuits and connections as may be required to furnish reasonably adequate telephone service between such public utilities."

No attempt was made in the state to enforce this statute until the latter part of 1911, when Frank Winter, of LaCrosse, petitioned the railroad commission to issue an order directing physical connection of each of the systems—the LaCrosse Telephone Co. and the Wisconsin Telephone Co.—with the toll lines of the other. Hearings were first held in January, 1912, and in May the commission rendered its decision requiring a physical connection, prescribing the manner of making it and apportioning the cost equally between the two companies.

In August, 1913, the Bell company brought suit in the Dane County circuit court to set aside the order and enjoin the commission from proceeding further, and in December, 1914, Circuit Judge E. Ray Stevens rendered a decision sustaining both the law and the order. In his opinion, Judge Stevens said: "The order is simply a reasonable regulation, which increases and extends the public service of the plaintiff's plant within the very field in which it has held itself out as ready to serve the public. It is not a taking of the plaintiff's property within any of the constitutional inhibitions.

"The analogy between the case at bar and those in which physical connection of lines of railway has been sustained, is very close. In fact, in the railway cases the control of the companies over their property was interfered with to a much greater extent than is the case with the physical connection of telephone plants."

The Wisconsin Telephone Co. immediately announced that it would carry the case to the state supreme court and, if necessary, to the United States Supreme Court. The decision just handed down is the result of the appeal to the state court.

The state supreme court holds that the physical connection statute is plainly a valid exercise of police power and that there was ample evidence from which the commission might find that physical connection was required by public convenience and necessity. The court states that "necessity" as used in the law does not mean an absolute necessity but "a strong or urgent need." It also points out that the Bell company's claim that it would suffer "irreparable injury" from the connection order, rests upon opinion testimony in advance of any actual experiences.

The California Supreme Court in December, 1913, held the law requiring physical connection of telephones in California to be unconstitutional. This case has been severely criticised and, according to a note appended to a report of the case (50 L. R. A., N. S. 652), is actually contrary to the great weight of authority. In an Oregon hotel case on physical connection in the United States District Court of Oregon, the three judges sitting in the case, sustained the commission's order on the authority of decisions of the United States Supreme Court in railroad cases and expressly disapproved the California ruling.

The Wisconsin Supreme Court, in its ruling, appears to have decided the case in accordance with the great weight of authorities.

The Firm of "Thinker and Tinker"

By HERBERT KAUFMAN

There are feet enough in the world to keep any shoemaker sticking to his last. He can always find a good market for a good boot. Concentrate on your specialty—it's as big as you are. But no task counts for more than the man behind it.

Millions have been made out of pin heads, but never with them. What you do is secondary to how you do it. Fortunes have been extracted from and turned into junk piles—a waster's refuse heap is a chemist's gold mine.

The Chinese first thought of gun powder and next of fire crackers. They hit the idea and missed the application. They discovered the force with which to conquer the universe, and are today vassals to a toy nation, that discovered itself in the utilization of that force.

Enterprise fattens on the leavings of fools. A Boer farmer fought privation on the site of the Kimberley diggings, while his babies amused themselves with diamond pebbles. No circumstance can profit an ignoramus.

Luck is like a lightning rod—it can't hold what it catches. Franklin didn't find electricity by accident, but by a key. His idea was in the clouds, and worthless till he sent up and brought it down to earth.

Everybody knew that flying was feasible. Proof existed as long as man, but the knowledge didn't help until we helped ourselves. It was all "plane" sailing after we went about it in the Wright way. When man grows sufficiently thoughtful, he grows wings.

Intelligence is the jack-of-all-tools. When brains and fingers connect—so does everything else. The old reliable firm of "Thinker and Tinker" prompted and promoted every original enterprise on earth.

They were court contractors for Hia and Chow—constructed the Great Wall of China, built Nimrod's Palace, engineered the Pyramids, stuck the Colossus across the Harbour of Rhodes, reared and decorated the Temples of the Acropolis, set up the Columns at Karnak, turned Niagara into a biscuit bakery, smelted rainbows and roses out of coal tar, invented tomato cans, false teeth, ear-muffs, locomotives, microscopes, felt hats, submarines and butter churns.

They'll take orders for anything, from an operation in laparotomy, to a hedge of Woolworth buildings. They'll deliver a dreadnought to destroy New York, and a gun to sink the dreadnought.

The secret of their success is "Co-operation." Tinker needs Thinker — Thinker needs Tinker. The firm fails when the partners separate.

Copyright, 1916, by Herbert Kaufman.

Wisconsin Supreme Court Upholds Physical Connection

La Crosse Physical Connection Order of Wisconsin Commission in May, 1913, Which Was Sustained by Dane County Circuit Court in December, 1914, Ruled Upon by State Supreme Court— Decision of that Court Affirms Circuit Court Ruling

By Fred L. Holmes

The Wisconsin Supreme Court, in a lengthy opinion handed down Tuesday, February 22, affirmed the decision of the Circuit Court for Dane County sustaining the order of the Wisconsin Railroad Commission requiring the Wisconsin Telephone Co. and the La Crosse Telephone Co. to establish and maintain a physical connection between their respective toll lines and local exchanges in the city of La Crosse.

The Wisconsin Telephone Co. brought an action in the Circuit Court of Dane County to set aside the order of the commission upon the ground that the order was not authorized by the statute and that it violated the constitutional rights of the Wisconsin company. That company claimed that a compulsory physical connection at La Crosse was not required by public convenience or necessity and that it would do irreparable injury to the Wisconsin company, in that it would take away the only inducement which the Wisconsin company had to retain subscribers for its local exchange in La Crosse.

It contended that its local subscribers at La Crosse would largely become subscribers of the local company and that, as a result, the Wisconsin company's La Crosse exchange—claimed to have cost $240,000—would be rendered valueless. The Wisconsin company also contended that the effect of the order was to give the La Crosse company unjust advantages in competition for toll business.

Requirements of the Physical Connection Statute.

The statute requires that the commission shall find, before making such an order, that the physical connection is required by public convenience and necessity, and that it will not result in "irreparable injury" to either of the utilities. In this case, the commission found that the connection was required by public convenience and necessity, but viewed the effect of an unconditional order as likely to result in depriving the Wisconsin company of its local exchange subscribers at La Crosse. As against this, however, the commission held that it was authorized to establish a charge for the physical connection service and in a supplemental order fixed a charge such as, in the judgment of the commission, would compensate for the additional service and would protect the Wisconsin company substantially against a loss of subscribers.

The state supreme court holds that the statute is plainly a valid exercise of the police power and that there was ample evidence from which the commission might find that the physical connection was required by public convenience and necessity. In this connection, the court said that the word "necessity," as used in this law, does not mean an absolute necessity, but "a strong or urgent need."

The court, in its opinion, points out that the claim of the Wisconsin company that it would suffer irreparable injury from the physical connection order in the loss of local exchange subscribers and otherwise at La Crosse, is supported only by opinion testimony in advance of any actual experience under the order. The court notices in its opinion, that the commission, in effect, held that an unconditional order would have the effect claimed by the Wisconsin company, but approved the ruling of the commission that a charge for the physical connection service would prevent the loss of subscribers to the Wisconsin company's local exchange. On this theory the supreme court held that the order could be sustained. The court said, however, that, if the company can show from actual operation under the order that it has suffered actual loss, it can apply to the commission for relief in the form of a modified order or a rescinding order. It said further that the order of the commission upon such an application would be reviewable in court.

The provision of the statute requiring that the commission shall find that the order will not cause "irreparable injury" is so defined that the commission is not authorized to make such an order where the physical connection would result in a substantial financial loss to the objecting company. It is held, however, that such items as the cost of making the physical connection and the like, would not be such a substantial financial loss as would constitute an irreparable injury.

On the other hand, if the result of the order would be to destroy the beneficial use of the local exchange, that would be an irreparable injury and the order could not be made. As to the effect of the order on this point, however, it is held that the evidence produced by the Wisconsin company is not sufficient to overcome the finding of the commission that the order would not have such results in this case.

The objection of the Wisconsin company that the order was an unlawful taking of its property, in that it required the Wisconsin company to place its toll lines at the use of the subscribers of a competing company and also required the Wisconsin company to turn over a part of its exchange equipment to that service and make alterations in its switchboard, is answered by the court's opinion to the effect that these requirements are within the police power of the state.

The court said: "The legislature has seen fit to exercise such power, provided no substantial loss would result. The authorities we deem to be quite conclusive on this point."

The judgment appealed from, is affirmed "without prejudice to the right of the plaintiff to make a subsequent application to set the order aside, if it so desires."

United States Independent Telephone Association

By C. Y. McVey, President.

The directors of the United States Independent Telephone Association met in Chicago at the Hotel LaSalle, February 19. This meeting was the first one held since the organization meeting during the convention in December.

At the December meeting, the details of the merging of the National Independent Telephone Association and the Independent Telephone Association of America could not be completed. The task of completing the consolidation was therefore placed in the hands of the executive committee; also the formation of committees and the general planning of the association's activities were to be handled by the executive committee. These instructions, the executive committee carried out at its meeting held in Chicago, January 8, and by a delegation of its authority to the officers.

The committee has created a powerful working organization which is receiving the hearty support of former members of both of the merged associations and many who had not allied themselves with either of those associations.

The property of the retiring associations has been purchased by the new association. The various lines of work that were being carried on have been taken up and enlarged by the United States association.

These organization details having been arranged for by the executive committee, the board of directors was called together to receive the report of the committee and to ratify the action of the committee.

The resignation of B. G. Hubbell, of Buffalo, as a director was accepted and H. L. Gary, of Kansas City, Mo., was elected to fill the vacancy.

An interesting session was held, during which there was much discussion of association policy. Several important matters are now before the Independent telephone companies of the country. One of these is the action in congress looking to the formation of a joint committee from the senate and house of representatives to investigate the effectiveness of the interstate commerce act in the control of telephone companies as well as railroad companies. Especially does one paragraph of the resolution creating the committee interest telephone companies. This paragraph is as follows:

"The committee is appointed to investigate also the subject of government ownership of all public utilities, such as telegraph, telephone and express companies, and railroads engaged in interstate and foreign commerce, and report as to the wisdom or feasibility of government ownership of such utilities and as to the comparative worth and efficiency of government regulation and control as compared with government ownership and operation."

Inasmuch as from time to time the association will be asked to meet committees representing other utility organizations in connection with legislative matters, the following committee was appointed to represent the United States association at such conferences: F. B. MacKinnon, of Washington, D. C.; P. C. Holdoegel, of Rockwell City, Iowa; and E. D. Schade, of Johnstown, Pa.

After receiving the reports of committees and attending to other routine work, the board meeting adjourned.

Kansas Independents Hold Convention at Topeka

Over 270 in Attendance at Twentieth Annual Meeting of Kansas Independent Telephone Association—Standardization of Operating Methods Urged—Committee Appointed to Secure Changes in Public Utilities Law and Its Administration—Report of Proceedings

The twentieth annual convention of the Kansas Independent Telephone Association, held last week, February 15, 16 and 17, at the National Hotel, Topeka, Kan., was pronounced one of the most successful conventions in the association's history. There were registered over 270 telephone men from all parts of the state. The entire seventh floor of the hotel was given over for exhibit purposes and a portion of the sixth was occupied as well. The operators' school, held for the first time by the Kansas association in conjunction with its annual convention, was a decided success and it is believed that much good will be derived therefrom.

Pleas were made at nearly every session for system, standardization of methods, tact, courtesy and above all uniform operating methods.

No fixed program was carried out Tuesday morning, the time being taken up with registrations, renewing of old acquaintances and inspecting the manufacturers' exhibits.

Opening Session.

The convention proper opened at 3 o'clock Tuesday afternoon, Mayor J. E. House delivering the address of welcome on behalf of the city of Topeka. The response, on behalf of the association, was made by J. D. Waters, of Bonner Springs, who predicted that the Independent telephone companies of Kansas were to become the dominant telephone power in the state through closer organization, standardization of methods and extension of their system.

Following the address of welcome and response, John M. Kinkel, member of the Kansas Public Utilities Commission, addressed the convention on "The Advantage of Public Utilities Commissions." Among other things, he urged the telephone men to get system into their business so that if it became necessary for them to appeal to the commission, they would have something upon which to base their appeal. He said that most appeals in the past had revealed an astonishing lack of evidence.

President T. L. Youmans made a few remarks, among which he said:

"We are going to make the Independent telephone companies of the state a real power. We want to introduce systems of method and operation; we want to effect all the advantages of a close corporation and still retain that most essential advantage of local ownership. We can do it and will do it. The telephone men want it and they are in the proper frame of mind to put it across."

The remainder of the afternoon session was taken up with the answering of practical questions and discussion of various topics. This part of the program was in charge of H. N. Faris and C. J. Myers.

In the evening the telephone men were entertained at a theater party as guests of the Topeka Commercial Club.

Wednesday Morning Session.

At the Wednesday morning session Senator J. D. Joseph, of Whitewater, delivered an address on the "Ideal Mutual Telephone Co." "Criticism," he said, "cannot be too severe against Independent, Bell or mutual telephone companies that do not co-operate in a spirit of fairness and good will for the mutual benefit of all.

Continuing, he declared that the disposition of Bell and Independent companies not to grant to the mutuals terminal fees for in and out messages is responsible for much of the ill feeling often existing among them. Senator Joseph insisted that the public utilities commission should always make as one condition to any permission to raise rates, that the company applicant grant the terminal fee above stated to all companies asking the same, with which its toll lines are connected.

The mutual and small joint stock company is best adapted to the country and village, Senator Joseph believes, but for cities the mutual, large or small, he does not think practical. He warned the telephone men against almost certain failure if a mutual company shuts itself out from the world by refusing connections with other companies, but in all contracts for joint service, the mutual should insist upon a five-cent terminal fee on each in and out message passing over its lines, when the total charge is 15 cents or more. He admitted there should be some exceptions to this rule but declared that such a fee is reasonable as a general proposition.

"But first," said Senator Joseph, "an ideal mutual telephone company should be organized upon a solid financial basis. Its

stockholders, or a large percentage of them, should comprise the best men of a community and a large percentage of the men in the community. A rate should be charged that will pay the expenses of operation, create a reasonable depreciation fund, and pay 6 to 8 per cent. annual dividend on the stock.

"For the average country community a grounded system will give reasonably good service, and will be preferred because it is more economical. The advantage of a mutual over the larger companies is that with a reasonable rate the mutual can give better country service. This is because of the red tape and cumbersome system of doing things, found in the operation of larger companies. On the other hand, if a mutual charges too low a rate and as a result gives bad service which causes the plant to depreciate from year to year, a large Independent or Bell company, properly operated, is to be preferred, even in the country."

Following Senator Joseph's address, H. A. White, of Kansas City, Mo., gave a practical demonstration of how to locate troubles in coils and bad joints. The remainder of the session was devoted to questions and answers.

O. F. Tallman, of St. Louis, Mo., was the first speaker on the program at the afternoon session, his subject being "Practical Methods of Locating Cable Trouble." This paper appears on other pages of this issue. D. V. Taylor, of Topeka, then spoke on "Cable Splicing."

The next feature of the afternoon's program was an afternoon's school conducted by Mrs. Alice Douglas, chief operator at Emporia, and H. E. Gwillim, traffic manager of Kansas City. There were present in the neighborhood of 75 operators from all parts of the state. In her opening address Mrs. Douglas made "Politeness" her keynote. No matter what the trying conditions may be, she said, politeness should be insisted upon by telephone managers and maintained by the girls. A tactful answer frequently turns an angry subscriber into an enthusiastic booster.

On Wednesday evening a banquet was held in the Commercial Club rooms, after which the men were entertained at a smoker.

The Thursday morning session was opened with an address by E. H. Hogueland, of Topeka, on "Decisions of Courts and Commissions," following which the operators' school held a session. At 10:30 F. B. MacKinnon, of Washington, D. C., third vice-president of the United States Independent Telephone Association, addressed the convention.

Upon recommendation of the resolutions committee, the association adopted resolutions in appreciation of the notices chronicled in the columns of the Topeka papers, designating Topeka as the model convention city of Kansas, extending its appreciation to the management of the National Hotel, in appreciation of the displays of the exhibitors and the addresses, papers and demonstrations which formed a part of the program, etc. In addition, the following resolution was passed relative to changes in the public utilities law or possible changes in the administration of the law:

"Whereas, complaints have been made to the association regarding the working of the public utilities law, and

Whereas, this association is of the opinion that said law should be amended in certain respects; and while we have no desire to censure the commission, realizing it may be caused by defects in the law and possibly by the neglect of our officers and believing it to be our duty to aid in its betterment.

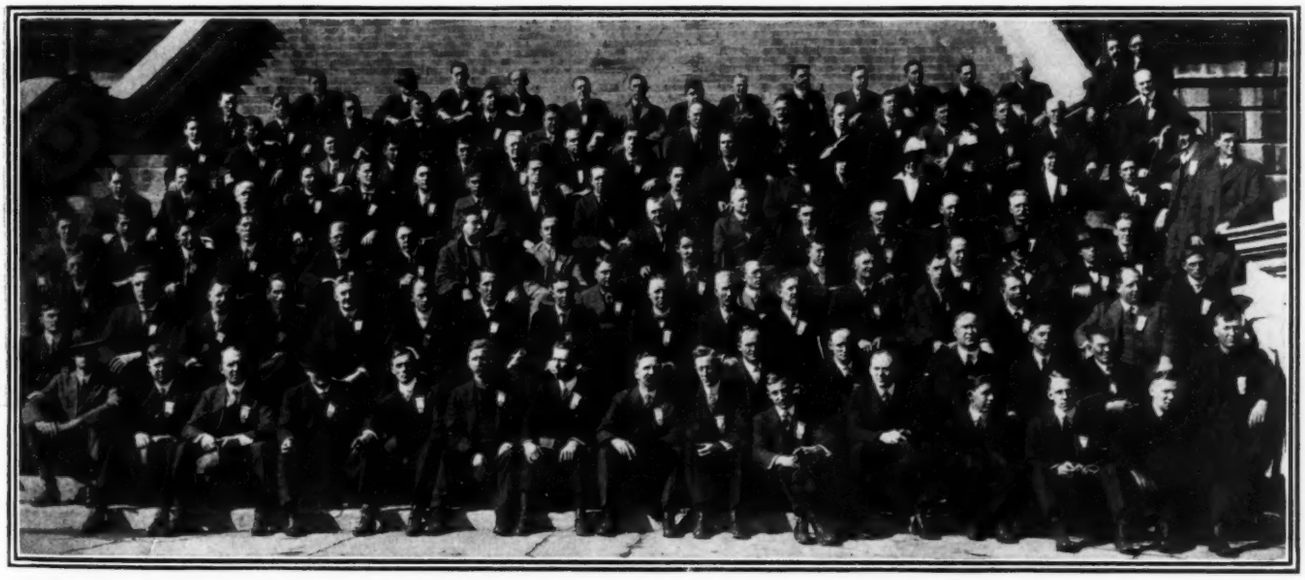
Resolved, that a committee of five be appointed by the executive committee for the following purposes:

First, to confer with the governor and the public utilities commission in reference to such possible changes in the administration of the law as will secure more prompt action on matters brought before the commission for adjudication.

Second, to confer with the said officials in regard to needed amendments to the law; to formulate such amendments and report the same together with a statement of the said conference to the executive committee on or before July 1, 1916, the said executive committee being hereby given power to act on said report."

T. L. Youmans, of Osawatomie, was re-elected president of the association; J. D. Waters, of Bonner Springs, vice-president; and J. H. Close, of Topeka, re-elected secretary and treasurer. The executive committee was chosen as follows: G. M. Stratton, Clay Center; B. W. Wiltrout, Logan; C. J. Myers, Kansas City; C. H. Parker, Eldorado; C. A. Sloan, Pratt; W. P. Hemphill, Ottawa; A. J. Stevens, Hiawatha.

The convention then adjourned.



Telephone Men in Attendance at the Annual Convention of the Kansas Independent Telephone Association, Held in Topeka.

Among the manufacturers represented were the following: Automatic Electric Co., Chicago; Automatic Addressograph Co., Kansas City, Mo.; American Electric Co., Chicago; B-R Electric Co., Kansas City, Mo.; Frank B. Cook Co., Chicago; Crane & Co., Topeka; Cracraft, Leich Electric Co., Genoa, Ill.; Garford Mfg. Co., Elyria, Ohio; Kellogg Switchboard & Supply Co., Chicago; Monarch Telephone Mfg. Co., Fort Dodge, Iowa; W. N. Matthews & Brother, St. Louis, Mo.; Naugle Pole & Tie Co., Chicago; Reliable Electric Co., Chicago; Stromberg-Carlson Telephone Mfg. Co., Rochester, N. Y.; S-R Electric Co., Chicago, and the Valentine-Clark Co., of Minneapolis.

Saving 25 Hours Daily for New York's Telephone Users

New Style Directory Cuts More than a Second from Time of Each of Two Million Daily References to It—How Big Book Was Made Bigger and More Legible Though Less Bulky—Published by Courtesy of The Telephone Review

The current issue of the New York City telephone directory saves 25 hours a day for the telephone users in the metropolis. A number can be found in this book in 1.08 seconds less than was possible in the preceding directory, and this saving on each of the 2,000,000 daily consultations the book receives, adds 25 hours every day to New York City's valuable time.

That is only part of the result of the New York Telephone Co.'s solution of the problem of how to keep New York City's telephone directory from becoming too bulky without sacrificing the legibility of its pages. The telephone company not only has increased the legibility of the biggest book of its kind in the world, by more than 10 per cent., but at the same time it has increased the amount of information the directory contains and yet reduced its weight by more than half a pound. There are 20 per cent. less pages to turn to find a name; 30 per cent. less distance for the eye to travel in following a listing from the beginning of the name to the telephone number, and 20 per cent. less pages to electrotype and print, which means quicker delivery of completed editions after the forms close.

A comparison of some of the statistics of the October, 1914, and October, 1915, issues of the New York City telephone directory will show the result of some of the improvements incorporated in the new directory. The October, 1914, book contained 952 pages. It had 325,000 listings arranged in three-column measure and it weighed three pounds and eight ounces. The October, 1915, book contains 836 pages, has 360,000 listings and weights slightly less than three pounds, and as already stated, it is much easier to read.

Advertisers' Classified Index . . Page 3
General Notices (Inclusive) Page 18
Useful Information . . Page 11
NEW YORK CITY
TELEPHONE DIRECTORY
Section 1—Boroughs of Manhattan and The Bronx
Section 2—Boroughs of Brooklyn and Queens
Section 3—Borough of Richmond (Staten Island)
May 6, 1915
AMERICAN TELEPHONE & TELEGRAPH CO.
LOCAL AND LONG DISTANCE TELEPHONE
BELL SYSTEM
AND ASSOCIATED COMPANIES
Reduced Rates for Telephone Service
within the
City of New York
Effective July 1, 1915
See Pages 22 and 23
NEW YORK TELEPHONE COMPANY

Old Cover of the New York City Telephone Directory.

The pages of the present directory are arranged in four columns and printed with a new type face, which is compressed slightly horizontally rather than vertically. The space between lines is increased. The book is bound by a new process which permits it to lie perfectly flat no matter where opened,

NEW YORK CITY
TELEPHONE
DIRECTORY
October 14, 1915
AMERICAN TELEPHONE & TELEGRAPH CO.
LOCAL AND LONG DISTANCE TELEPHONE
BELL SYSTEM
AND ASSOCIATED COMPANIES
Section 1-Boroughs of Manhattan & The Bronx
Section 2-Boroughs of Brooklyn and Queens
Section 3-Borough of Richmond (Staten Island)
NEW YORK TELEPHONE COMPANY
ADVERTISERS CLASSIFIED INDEX- PAGE 3 - GENERAL NOTICES (Inclusive) - PAGE 18
USEFUL INFORMATION- PAGE 11

Latest Cover Design of the New York Telephone Directory.

and the "job" is topped off by a new and more artistic cover design drawn by T. M. Cleland.

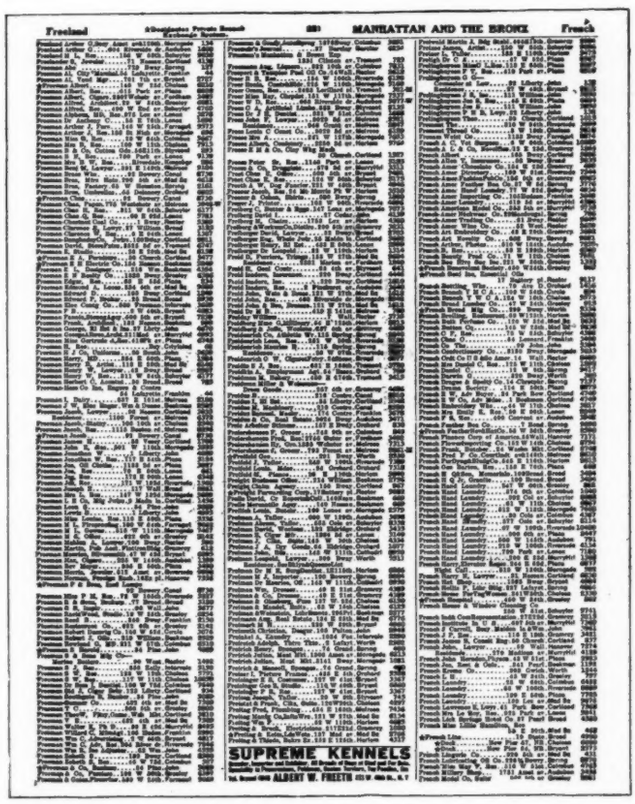
All these improvements are the results of nearly two years of study and experimentation by a committee of telephone men, which consisted of the general commercial superintendent of the company as chairman, the general commercial engineer, the metropolitan manager, the advertising manager, the traffic manager, a special agent of the chief engineer's office and the directory manager. From time to time as conditions required, this committee called for the services of division commercial managers, commercial engineers and assistants from various departments.

When the directory committee began work, it recognized that the problem it faced was pressing. Between 30,000 and 40,000 listings are added annually to the New York City directory and by the time its May, 1915, issue appeared, the book would not only be large for subscribers to handle but also too bulky to be bound by wire stitching as formerly.

Sub-dividing the directory into two or more volumes was advisable only as a last resort. It was out of the question to reduce the territorial scope of the book. The space gained by omitting the advertising pages, and lists of pay stations, would be counterbalanced by the average increase in stations in two-thirds of a year.

To reduce the bulk of the book, therefore, became a ques-

tion either of using thinner paper or of revising the typographical arrangements so as to accommodate more listings on each page. The use of a thinner paper would be a temporary expedient, for even with the thinnest paper practicable, the



A Page from the Old Style New York Telephone Directory.

book would be of the same bulk as the May, 1915, issue at the end of a three-year period.

Study of the question of typographical arrangement showed that while it was inadvisable to reduce the size of the type used, it nevertheless was feasible to decrease the width of the column to make a gain in space. This opened up the question of a four-column arrangement of the listings.

The committee had a sample page set up in a six-point type, compressed enough horizontally to permit the same number of listings in each of four columns as there were in each of the columns on the three-column page. To compare the legibility of this four-column page with that of the three-column make-up, the committee arranged a series of experimental tests, using 24 "Information" operators for the subjects. Each operator was given eleven tests. Listings were selected on each of the sample pages and the operators were asked to find these numbers and to do so under conditions as nearly as possible the duplicate of regular service conditions. Experienced observers using stop watches timed the operators while they made the readings.

Taking the average from the aggregate of 264 tests, the committee found that while a number could be found on the three-column page in 10 seconds, it required 11 seconds to find a number on the four-column page. This was an encouraging result, for with the opportunity to try out various arrangements of type, there was good reason to believe that not only could the loss of one second be prevented, but the average time of finding a number could possibly be brought down under the 10-second mark.

The suggestion was made that enough added legibility could be gained to prevent the loss of a second in the average time of reading by slightly leading the space between lines. Tests were made and the committee found that, not only could the one second be regained by this process, but, what was even better, the average time required to find a number might be shortened. These experiments showed conclusively that space between lines is of greater value in securing legibility than space between letters and that horizontal compression of letters is more advantageous than is vertical compression.

Tests along broader lines were desired, because the "Information" operators used in the experiments, like all telephone operators, are selected by the company for employment because of their good eyesight, and the telephone directory is consulted by all classes, some trained and some untrained, and all with varying quality of vision.

Dr. J. W. Baird, director of the psychological laboratory at Clark University, Worcester, Mass., was called in to supplement this part of the directory study by making tests with sample pages arranged in several different ways. Dr. Baird is an expert on the psychology of optics and printing. He made nearly 4,000 experiments, using 32 men and women as subjects. These individuals represented radically different occupations, different experience in the use of the telephone directory and different conditions of eyesight. Varying amounts of natural and artificial illumination were included in the tests so as to approximate the actual conditions under which the directory is ordinarily consulted.

No arrangement of pages profited more than another by the practice acquired by any subject during the course of the experiments. Pages with names beginning with the letters *I* and *M* and *S* were selected because they varied in difficulty. The three pages were set up in each of four different arrangements and mounted on cardboard. The type was of the same height and general style as that used in the October, 1914, directory. Each page was placed in a separate booklet. Each

Corresponding Page from Last Issue of Directory.

subject was given the name of a subscriber, repeated it aloud to make sure he had understood it correctly and then opened the booklet and looked up the number. He was timed from the moment he opened the booklet until he found and pronounced the number. In the illustration, the

man seated at the right of picture is calling names of subscribers. The man seated opposite him is looking up telephone numbers, while the girl is keeping time with a stop watch.

To find a number on a page from the old directory set in three-column measure required an average time of 10.36 seconds. To find a number on the four-column page which was finally selected required 9.28 seconds. This page was set in four-column measure and leaded very slightly between the lines of type so that there were 11 lines of type to the inch instead of 12 as in the three-column arrangement of the old directory.

The gain in legibility is probably greater than the 1.08 seconds per average reading or slightly more than 10 per cent. Disregarding the group of subjects who were least expert in finding a number and considering only the most expert and the group of readers who were neither expert nor non-expert, the average gain in legibility amounts to more than 19 per cent.

These two groups were able to read the listings of the three-column page of the old directory in the average time of 9.16 seconds. They read the new four-column page in 7.47 seconds. The middle group alone could find numbers on the old page in 10.24 seconds. It took them 8.28 seconds to find numbers on the new page. This is an improvement of slightly more than 18 per cent. for this group of subjects.

The studies made by the committee covered not only the New York City directory, but also the local and division telephone books which the company issues throughout its territory.

In every case where conditions warranted, the results of the experimental work on the New York City directory were applied to other books. The telephone company each year publishes about 4,600,000 telephone directories, and the benefit of the improvements made in the form of supplying telephone information is spread out over a wide territory.

Associate telephone companies are making good use of the studies made by the New York Telephone Co. and the general comment from telephone subscribers shows that the company's endeavor to supply them with telephone information in a more readable and more convenient form is not unappreciated.

Testing the Legibility of Sample Telephone Directory Pages.

Banquet of Telephone Society of Bluefield, W. Va.

Over 100 guests and employes of the Bluefield Telephone Co. were entertained at the first annual banquet of the Telephone Society of Bluefield, held at the Commercial Hotel, Bluefield, W. Va., January 15. An excellent repast was served and the program came up to the highest expectations. Attractive folders were distributed which contained the menu and the program, the officers of the company, the committee on arrangements, etc.

Senator W. P. Hawley, general manager of the Bluefield Telephone Co., presided and introduced John Kee as toastmaster. Mr. Kee eloquently described the telephone and its creation.

Rev. Guthrie Pitblado, rector of Christ Episcopal Church, pronounced the invocation. The music was under the direction of James Elmer Brown and the first numbers, a solo by M. L. Barrett and violin solo by Vincent Paoliello, were highly appreciated.

W. L. Shafer, of the chamber of commerce, made an address of welcome, in which he spoke of the wonderful inventions, the telephone among them. He closed with a toast in which he named W. P. Hawley, W. A. Pankey, H. S. Henly and others, after which the Nevin quartette composed of Messrs. Barrett, Pearson, Neel and Crawford, sang several selections which were well received.

Short talks were made by Judge Ritz, R. L. Wright, superintendent of the Chesapeake & Potomac Telephone & Telegraph Co., Richmond, Va., and C. E. Creasy, of the engineering department of the Chesapeake company, Baltimore, Md.

D. J. F. Strother, counsel for the company and known as "Dan, Dan the lawyer man," was the next speaker. He touched upon the trials and tribulations of the various departments of the telephone company, and the extent of the industry, and made prophesies as to the future development of the telephone.

A musical number that was very much appreciated was a song, "Sing, Smile, Slumber," by Miss Bessie McCann, accompanied by Miss Selma Roth, violin obligato, and Miss Irma Roth.

Wm. McCarthy, superintendent of the Bluefield Water Works & Improvement Co., spoke on "Liquid Inspiration," and told a pleasing and amusing story of an old time telephone exchange.

H. I. Shott was the next speaker. He dwelt on the trials that subscribers seem to have to endure through not understanding the workings of the company's methods of operations, after which Maury Barrett sang "Believe Me If All These Endearing Young Charms."

J. M. Jewett, of the Western Electric Co., of Richmond, Va., was the next speaker, who took as his subject "Hello Girls," which was very favorably received.

Toastmaster Kee expressed the appreciation of the visitors and the guests at being present at this most successful and happy affair. The Nevin quartette sang "The Sand Man," after which all present joined in singing "Auld Lang Syne" as the meeting broke up.

At the annual meeting of the Telephone Society held just before the banquet the following officers were elected for the new year: President, E. C. Curtis; vice-president, G. R. Gish; secretary-treasurer, E. L. Ashworth, with Miss A. Etta Webb as assistant. The executive committee is composed of E. C. Curtis, G. R. Gish, H. J. McKenna and Miss Willie White.

"Telephony's" Home Study Course for Telephone Men

A Complete Presentation of the Principles Underlying Modern Telephony in All Its Branches—Arranged Systematically So That Regular Reading and Faithful Study Will Qualify Ambitious Men for Higher Positions—Prepared Under Supervision of Stanley R. Edwards—This Section Written by Jay G. Mitchell

Quiz Questions on the Preceding Installment.

316. Give one reason for winding the wire tightly when winding relay coils.

317. What is "impregnation" of relay and other coils?

318. Outline the most approved method of impregnating coil windings.

319. Give an example, other than those mentioned in this section, of impregnated coils.

320. What, in actual effect, is the reason for winding coils in separate layers carefully insulated from each other?

321. Outline some of the advantages of machine-wound coils.

322. Why is a properly made, hand-wound coil more efficient, in all probability, than a machine-wound coil made under the same general specifications?

323. Give a brief description of one of the most ingenious methods of winding coils automatically.

CHAPTER XV. Coil Windings (Concluded).

324. *Location of coil terminals and connections to them.*—The external terminals of the coil winding, when any are necessary, may be of almost any form. The various manufacturers make use of different styles and it is quite usual to find different terminals mounted in the various coils produced in the same factory. It is essential that the terminals have sufficient mechanical strength to support the operation of soldering and to maintain their shape under all the conditions likely to be encountered.

In some types of equipment it is common practice to support the coil terminals directly upon the coil head. The more common practice, in relay construction, is now to mount the coil terminals upon the relay frame and to secure them in place with machine screws. This would seem to be the more satisfactory method, making due allowance for the increased difficulty of insulating.

The ends of the wires of the winding, except in the case of coils designed solely for resistance purposes, should be soldered to the terminals as closely as possible to the spool. In this way, as nearly as possible, *all* the wire of the coil will be effective in creating the desired magnetic effect in the core. When the wire of the winding itself is very fine, it is the custom to attach a short length of coarser wire to it for terminal connections. By this method the fine wire is not subjected to the danger of breakage by mechanical strains for which it is not suited. In such cases, the heavier wire is brought out and soldered to the terminals after it has been wrapped once or twice around the body of the coil.

325. *Resistance coils and their construction.*—There are occasions in telephone practice when it is necessary to reduce the effective voltage in some branch of a circuit. This is done in almost every case by the insertion of a length of resistance wire. In some very few cases it is possible to make use of a battery of lower voltage. The more common expedient involves winding the length of resistance wire in the form of a coil for the sake of compactness.

The calculations governing the placing of resistance wire in compact coils, as far as winding space is concerned, are the same and it is wound on a spool in precisely the same way as copper wire is wound on relay spools. It is extremely important that the temperature rise in resistance coils, due to the flow of current through them, shall be kept at a low point. This is practically the only essential to be taken into account by the designer of this kind of equipment.

German silver wire is commonly used for the resistance metal and it must be of large enough gauge so that the rise in temperature shall not constitute a fire hazard. Eighteen per cent. German silver has about 18 times the resistance of copper of the same length and diameter. Thirty per cent. German silver has about 28 times the resistance of copper of the same length and diameter. It is possible, therefore, to obtain quite high resistances in comparatively small space by the use of these wires.

By winding the resistance wire on mica supported by metal frames, one manufacturer of telephone apparatus has greatly improved the general construction of resistance coils. When wound on wooden spools, it was necessary, in order to secure safety from fire damage, to use larger sizes of wire than would otherwise be required, speaking from the standpoint of resistance only, in order that there might be no danger from an undue rise in temperature.

CHAPTER XVI. The Typical Line Circuit.

326. *What is included in the "line circuit."*—The relay is one of the essential elements in the operation of the line equipment. Hence the study of the typical common battery line circuit may properly follow the study of coil windings, as there are relatively large numbers of coils used in relays. Telephone practice has crystallized the meaning of the term "line circuit." All the equipment and apparatus involved in placing the incoming telephone call in the condition just prior to the time of being answered by the operator, is comprised in the commonly accepted meaning of the term. Of this equipment, that part included in the switchboard equipment is known as line equipment.

327. *The purpose of the line relay.*—It has been shown that while an electromagnetic target signal may be employed in common battery line circuits direct, if the miniature switchboard lamp is used, another item of equipment is necessary to

counteract the effect of the non-uniform resistance of the various lines. In practically all cases, this additional necessary piece of equipment in the line circuit is a relay. In some cases the lack of uniformity in the lines has been overcome by the insertion of an equalizing resistance in the signaling part of the circuit (TELEPHONY's Home Study Course for Telephone Men, November 27, 1915). This expedient has been confined to private branch exchange service where the line circuits were all of comparatively short length.

Voltage.	Maximum Amperes.	Voltage.	Maximum Amperes.
4	0.210	16	0.310
4	0.310	18	0.120
6	0.160	20	0.120
6	0.310	24	0.035
8	0.100	24	0.045
10	0.260	24	0.115
12	0.120	30	0.120
15	0.120	35-47	*0.025

*This is a tungsten lamp.

Voltage and Current of Some Switchboard Lamps.

The use of the line relay in the line circuit to control, by its local contacts, the circuit of the line lamp, is standard. Owing to its great adaptability to circuits of different resistance, the modern telephone relay may, to all practical intents and purposes, be considered as independent of ordinary variations in resistance under operation conditions.

328. *The line lamp switchboard signal.*—In connection with the line relay, the line lamp constitutes a very satisfactory and reliable type of switchboard line signal. It is small in size, silent in operation, and it is readily renewed in case of failure. The manufacture of telephone switchboard lamps has been standardized so that they may be secured for almost any required voltage or current consumption.

In the accompanying table are given the characteristics of some of the ordinary small telephone switchboard lamps. Where more than one value of current is given for a particular voltage, there are several lamps operating at that voltage, the characteristics differing in some particular. Other sizes than those listed are made and used but the trend of telephone practice is to make use of only one size for all purposes, using lamps of various resistances and voltages as the nature of the circuit may demand.

329. *Function of the line equipment.*—There are certain functions common to all telephone line circuits. This is true whether the line circuit terminates in the simplest one-position magneto switchboard or in the most elaborate common battery office. Certain of these functions are confined to that part of the line circuit found inside the limits of the central office. On this basis, consideration of the line circuit will be, of necessity, entirely separate from any consideration of the conecting circuits such as connecting cord equipments in manual offices or the trunk equipments in automatic or semi-automatic offices.

The general line circuit functions as they have been developed in modern telephone practice may be enumerated as follows:

First. The line circuit constitutes a continuous path from the subscriber to the switchboard for telephonic transmission.

Second. The line circuit comprises means at the switchboard by which the operator may be signaled by the subscriber.

Third. The line circuit contains arrangements by which it may be connected with other line circuits or disconnected from them, once the need for an existing connection ceases.

Fourth. The signaling apparatus for calling the operator either will not interfere with transmission, or it is always disconnected during the use of the circuit.

Fifth. In switchboards having more than one position, the line circuit is equally accessible to all the operators.

(To be Continued.)

"Yama Yama" Party of Terre Haute Operators.

The "Yama Yama"—"High Jinks" carnival dance recently given by the officers of the Citizens Telephone Co., at Terre Haute, Ind., for its employes, is reported to have been a big success. There were about 150 guests present, including a number of out-of-town operators from Brazil, Sullivan, Marshall, Ind., and Paris, Chrisman and Tuscola, Ill. A network of wire was strung over the hall upon which were thrown hundreds of strands of colored serpentine rolls which formed a canopy above the dancers. Every one had a plentiful supply of baloons, feather dusters, etc., and many beautiful costumes were seen.

During the day C. E. Doolittle, traffic superintendent of the Citizens company held a traffic school which was attended by operators from exchanges with which Terre Haute handles toll under the single ticket method. Most of the operators in attendance at this conference had provided themselves with costumes and stayed over for the dance.

Among the officers present at the "Yama Yama" party were: Hart F. Farwell, president; A. L. Staderman, secretary and engineer; H. A. Pritchett, contract manager; A. Foster, plant superintendent; Silas Walker, manager at Marshall; Maro B. Farwell, manager at Chrisman; E. O. Baker, manager at Paris, and T. C. Ainsworth, Bloomington, Ill. C. E. Doolittle, traffic superintendent, made a short address in behalf of the operators in appreciation of the entertainments, as means of getting together socially as well as in a business way. Howard Staderman, small son of Secretary A. L. Staderman, acted as mascot of the evening's entertainment.

This affair was so much enjoyed by the operators that a committee was appointed to arrange a party on St. Patrick's day. This will also celebrate the opening of the new addition to the telephone building, third floor of which is devoted to spacious rest and dining rooms, locker room, hospital, kitchen, etc.

Press Reports of Merger at Louisville Without Foundation.

Considerable interest has been created in Louisville, Ky., by publication in one of the papers of what purported to be an authoritative statement that plans were forming for consolidation of the Louisville Home and the local Cumberland Telephone & Telegraph Co., in connection with the Combs bill in the state legislature and the fact that the stock of the Louisville Home has been advancing. The article, however, was remarkable mostly for the misinformation that it contained, it having J. P. Morgan undertaking to consolidate the Ohio properties and to acquire the Louisville Home. Still the article has had the effect of creating an impression of plans to consolidate, although dismissed in authoritative statements as exceedingly remote at best. There continues to prevail a good deal of agitation in the state which is generally favorable to the merger proposition and to the Combs bill.

The Swinging Pendulum

Birth of Regulation—Will the Pendulum Reverse Again?

By J. C. Kelsey

Everything has a small beginning. Rivers rise in secluded mountain streams. A fire, which destroys a town, possibly started from a single match wrongly applied.

The great steel trust goes back to the original blacksmith who moulded cannon balls and shod horses for the War of 1812.

The first automobile has few kindred lines with the modern car, for evolution has been at work. From that car which still kept the traditional whip-socket of the buggy, a driver starts his car and makes all operations without leaving his seat.

Even the great man was once a toddling baby with no further ambition than to grab a milk bottle. Yet evolution made him a greedy grabbing man, powerful and arrogant. But according to the law of the pendulum, one generation finally goes back to shirtsleeves, meek and humble, ready to ask crumbs from another powerful man's table.

A long while ago a man made an unfortunate remark. As the simple incident of Mrs. O'Leary's cow, he made a bad break which, as the fire crept beyond control, engulfed him.

This man was a Vanderbilt. To be sure he was an artistocrat, feared by all, because in addition to having a family tree, he was a magnate who had control over the financial life and death of men.

One day he was approached by a group of citizens of a city on the New York Central road who wanted some new service. To clinch their argument, they referred to a circular, which told of a change in operation the Pennsylvania Railroad proposed to make for the public's benefit.

Mr. Vanderbilt, after investigating the claims of the circular, and seeing that it was for the railroad's benefit principally, said in a jest: "Public be damned, they are doing it for their own benefit."

The delegation of citizens, in their anger, forgot the last part of the Vanderbilt speech, and it was heralded forth to the whole world that a great corporation manager had thrown the gauntlet to the feet of the public.

"The public be damned!" That striking sentence, sweet in its brevity, easily remembered and not misunderstood, was a declaration of war. The public was unprepared for war of this kind at that time, and men set to work to prepare them. It was then that men began to dream of regulation, to avenge the speech of the magnate, and to carry the pendulum from the side and control of the corporation to the side and control of the public.

The Interstate Commerce Commission was born. At first the railways resisted, but finally they surrendered. It seemed so easy that every state took up the cry for vengeance and organized its own regulatory body, giving it the power of life and death over all public utility corporations.

Sometimes we hear of corporations complaining that every bit of privacy and liberty has been taken away. We see the public service regulatory bodies demanding this and demanding that and we become alarmed at the defenselessness of concerns which once hurled their defy to the public.

We have to make reports to the government, to the state for taxes and to the commission for guidance. We can see our hated competitor examining our weak spots and our hearts grow bitter in reproach.

We are simply being punished for the sins of our fathers, even back to the third and fourth generation. Our ancestors ate the public grapes and have put our teeth on edge.

Our ancestors issued bonds, stocks and every evidence of debt without even looking at the assets. The public bought promises of wealth in the shape of bonds only to find that they were a sort of a Dead Sea fruit.

And worst of all they had no recourse, for our corporate ancestors held their fingers crossed and, as you bought, they religiously muttered so that the buyer could not hear: "Caveat Emptor," which means, "Let the buyer beware." In those untrammeled days, it was not a question of how one got it as much as whether he had it.

Just as our ancestors—not far removed—could appear at a party gloriously drunk, so could they openly brag that they had sold some one a gold brick certificate without disgrace and without penalty.

Hence it came to pass that the pendulum, held back by license of every kind, began to be impelled in the opposite direction by men who had suffered from these lawless deeds.

That is why we have blue sky laws—simply because the pendulum has been carried from the control of the lawless over and across to the hands of the public who have to buy something which will give them an income in their old days.

That is why the state demands a description of your stocks and bonds while it is describing your physical property. It merely demands to know what you are selling to the public, and the only way is to call you to the bar of justice and make you tell under oath what you have.

A long while ago, some citizens of San Diego wanted a railway, connecting them directly with the East. They donated money and land of several millions of dollars' value to a company of men who agreed to build and operate such a railroad. Naturally the line was cheaply built, running through a canyon into Riverside county, which made San Diego their natural outlet or seaport.

This railroad, something as the biblical house on the sands, was washed out the first year of its operation, and a valuable contributory country, comprising 1,600 square miles, and well settled, was forever cut off.

Naturally the people of San Diego who had paid for this railway wanted it rebuilt and put into operation; they could not see why the millions invested in good faith should be forever lost to them.

If you remember something of Joseph, the man who cornered all the grain in Egypt, you will remember something about a Pharaoh who rose in the land and knew not Joseph, and did not recognize his good works.

Anyway this particular Pharaoh laid down one of the most reliable alibis ever given to humanity. On his plea, half of the world has rested throughout the thousands of years following.

In fact, it was followed by the Santa Fe Railway Co., which succeeded to the ownership of the company that built the original railroad and which alleged that "it has no information or belief sufficient to answer the complainants' allegation with reference to the bonus in land and money furnished by the citizens of San Diego." In other words, the great Santa Fe system does not remember Joseph at all.

The Santa Fe Railway Co. merely took over the Santa Fe Railroad Co. which took over the California Southern Railway that took over the California Southern Railroad which took over the funds and bonus from the San Diego citizens.

How much it sounds like our childhood version of the make-up of a great modern corporation?

"This is the man, all shaven and shorn,
That kissed the maiden all forlorn,
That milked the cow with the crumpled horn,
That hooked the dog that chased the cat, which ate the rat,
which ate the malt that lay in the house that Jack built."

It appears to the Santa Fe Railway Co. that the citizens of San Diego should look to the rat that ate the malt that lay in the house that the California Southern Railroad built, and not try to hold the man, so vitally related to maiden, cow, dog, cat, and especially to the rat which ate the malt.

Whatever may be said, the California Railroad Commission has decided that the cat, dog, cow, maiden and man have no alibi, and that the railroad must be rebuilt.

Go back as far as 1881, when the road was washed out and abandoned. The citizens of San Diego had to take their medicine because there was no place nor body to which the citizens could go and ask for relief.

True, they could go into court, and more courts, because courts welcome long lawsuits. Would anyone refuse meat and bread when hungry? One cannot blame the courts for hanging on as long as decency permits. It does not cost as much to go to a state railway commission, and that may explain why a pendulum has swung from one extreme to the other.

After 1881, it was a plain case of "public be damned." Today, beginning in 1915, it is a case of "railroad be damned," for the railway has been ordered rebuilt. Do you wonder why the public is rather fond of its commissions at times?

Now the great question is this: The corporation is ordered to spend $657,000 to put a railroad through a place subject to washouts and dangers when a railroad already exists in a more round-about, yet suitable, way.

The public has certain rights and the railway has certain rights. Has the public a right, through its commission, to order a dangerous railway built?

Undoubtedly it takes the right, but is there not a possibility that an abuse of power and privilege on the part of the public is likely to upset the pendulum and allow it to fall back to the old day position?

The question, today, is whether the cost of public regulation exceeds the losses due to the old-time policy of the "public be damned." It is purely an economic question—this whole uestion of regulation—and its life or death depends upon the saving or excessive cost to the people.

A state board of regulation can order a new depot built, but the public has to pay for it. But the curious part of the situation is that the part of the public which pays for everything is discriminated against.

The law is borne with a hatred of discrimination, yet every act of the law discriminates by putting the cost upon the man who pays or who has property.

A state board may order a condition whereby all men are considered equal in credit. It is well known that all business has a chance of losing money, and does lose it, by selling goods or service to deadbeats—men who are unwilling to pay or who cannot pay.

When a company enforced payment on every one's part, it put no burden upon those who pay, because no uncollectible accounts existed. When the state orders a new way of enforcing collection, and thereby creates an uncollectible account, which it says can be charged to operating expense, and goes further by saying a rate must be given which will pay expenses, it merely legalizes the deadbeat.

By legalizing the deadbeat, it is guilty of rank discrimination, because people who do pay are subjected to a higher charge, which is but another way of making the willing man pay the bills of the unwilling man. The commission law is merely an unwritten law that a man is his brother's keeper.

If a state board says a telephone company cannot make a charge for moving a telephone, it merely discriminates against the man who does not move by prorating the expense against all who do not move.

If it says that house wiring must be done at the expense of a telephone company, then the law discriminates against the man whose house has the least amount of wiring because the cost is prorated by a rate charged to all alike.

If it says that an exchange must be operated all night, it merely discriminates against those who do not need night service and yet must pay for it by a rate charged to all alike.

In 1881 this railway said the public could be damned. In 1915 the public says this railway can be damned.

Surely we have seen some changes in 24 short years of history. Who may not say that the public crusade in the latter part of the Nineteenth Century and the early part of the Twentieth Century does not compare with the great crusades of the middle and dark ages.

As telephone men we saw the dying days of the "public be damned" era. We were really a part of the crusade, as a gigantic protest against, as well as punishment of, an arrogant monopoly which out-Vanderbilted the Vanderbilts when it came to the expression of "public be damned."

Today no great corporation tries harder to eat, or pretend to eat, out of the public hand than this same heir and assignee of the American Bell Telephone Co.

Whatever may be said, the condition of regulation is for the better—it is an evolution over which feeble mortals, of few days and full of trouble, have little control.

MORAL: Be more charitable.

La Crosse Company Purchases Mill Creek Properties.

The La Crosse (Wis.) Telephone Co. has purchased a portion of the business of the Mill Creek Telephone Co., whose central offices are at Viola. The La Crosse company pays $3,000 for the central office, wire plant, telephones and lines of the Mill Creek company within the village limits of Viola, and as part of the arrangement undertakes to switch those rural subscribers who connect direct with Viola central and also to connect with the Mill Creek company's exchanges at Boaz and Sylvan.

Dixon (Ill.) Home Company to Build New Exchange.

Plans are being completed by the Dixon (Ill.) Home Telephone Co. for the erection of a new two-story exchange building at the corner of Second Street and Peoria Avenue. When the building is completed, new central office equipment will be installed and the company's plant overhauled. The total expenditure will be in the neighborhood of $75,000. The work will be commenced early in March and will it is expected be completed by November 1.

Annual Reports and Meeting of Telephone Companies

Statements Issued by Telephone Companies in Various Parts of the Country Relative to Their Operations During the Past Year—Earnings and Surplus Accounts Show Companies to Be in Excellent Financial Condition—Election of Officers

United Telephone Co., Monroe, Wis., Issues Annual Report.

The annual report of the United Telephone Co., of Monroe, Wis., for the year ended December 31, 1915, shows a gross revenue of $34,411, as compared with $29,937 for the previous year. Expenses totaled $26,894, leaving $7,517 net earnings. The revenue and expense accounts are as follows:

Revenues.	
Exchange services	$25,296
Commissions (from toll and connecting companies)	4,861
Toll line earnings	3,838
Labor and material sold	234
Interest	182
	$34,411

Expenses.	
Central office operation	$ 8,487
Wire plant operation	2,119
Substation operation	1,587
Commercial	1,476
General plant	4,845
Miscellaneous	1,100
Depreciation (as estimated)	4,601
Depreciation interest. (This is on the part of the depreciation fund which is invested in the plant)	1,055
Taxes	884
Interest on bonds	740
Net earnings	7,517
	$34,411

The amount spent for reconstruction during the year totaled $2,193, while $4,899 were spent for new construction and additions to the plant. The company's resources and liabilities are shown in the following statement:

Resources.	
Plant	$117,020
Bills receivable	3,900
Treasurer	4,211
Material on hand	537
Accounts receivable	1,106
Reconstruction	23,655
	$150,429

Liabilities.	
Capital stock	$ 66,025
Script	112
Bonds	15,200
Undivided profits	13,374
Depreciation fund	47,957
Contingency reserve	4,000
Tax reserve	838
Accounts payable	290
Interest on bonds	322
Dividend No. 27	2,311
	$150,429

An analysis of the company's business relative to the four exchanges which it operates, shows that on December 31 there were in operation 1,184 telephones in the Monroe exchange, 358 at Albany, 512 at Blanchardville and 274 at Monticello, a total of 2,328.

The stockholders re-elected the same board of directors for the ensuing year: P. J. Weirich. W. B. Monroe, F. A. Shriner, J. C. Penn, E. M. Knapp and W. P. Bragg. The officers of the company are as follows: P. J. Weirich, president and general manager; W. B. Monroe, vice-president; F. A. Shriner, secretary; J. C. Penn, treasurer.

During the year 39,000 toll messages were sent out of Monroe to 160 cities and towns in the country as far east as Washington, south to St. Louis, west to points in South Dakota, and north to Superior, Wis. Twenty-two thousand of the messages were to 14 towns within a radius of 15 miles from Monroe.

Miss Margaret Burgy, chief operator of the Monroe exchange, showed that there was an increase of 44⅔ per cent. in the local calls in 1915 over the year before.

Report of Valley Home Telephone Co.

In the annual report of President Clyde O. Trask, of the Valley Home Telephone Co., of Saginaw, Mich., to the stockholders, he states that in many respects the year just completed has been the best in the history of the company. On December 31, 1915, the number of telephones owned and operated in its various exchanges was 8,962, a net growth of 1,267 telephones for the year. This was the largest growth the company has experienced in any one year.

The gross revenue for the year ($189,504) includes $146,656 from telephone rentals, an increase over the previous year of $11,420; $38,913 toll receipts, an increase of $4,504, and $3,935 miscellaneous revenues. The expense of operating for the year was $66,425, an increase of $13,363; overhead and general expense, $16,363, an increase of $1,398. Taxes and insurance amounted to $10,244, an increase of $371. The expenses totaled $134,952, an increase of $19,205 over the previous year.

Following is a summary of the earnings and expense accounts for the year ending December 31, 1915:

Earnings.		
Telephone rentals	$146,656	
Toll income	38,913	
Other sources	3,935	
		$189,504
Expenses.		
Management and operation	$ 66,425	
Reconstruction and maintenance	41,920	
Overhead and general	16,363	
Taxes, insurance and miscellaneous	10,244	
		$134,952
Available for fixed capital charges		$54,552
Bond and other interest	10,886	
Preferred stock dividends	29,326	
		40,212
Surplus or undivided profits for the year		$14,340

The cost of caring for the growth for the year was $97,754, representing additional investments in plant and property. Of this amount $67,131 was expended at Bay City, $21,381 at Saginaw and the remainder among the other exchanges.

The surplus earnings of $14,340, after payment of bond and other interest charges, $10,887, and dividends, $29,326, plus payments upon stock subscriptions of about $6,000, were used to partially pay this cost of construction. The balance of this cost, plus the debts and obligations at the beginning of the year ($30,793), is represented upon the company's books as bills payable, amounting to $63,047, and acounts payable, $44,445, an indebtedness of $107,493. As an offset against this there is an unpaid balance of about $25,000 upon stock subscriptions, leaving a net indebtedness of over $80,000.

The company's balance sheet, as of January 1, 1916, follows:

ASSETS.

Plant and Property—		
Exchanges	$786,178	
Toll lines	84,953	
Real estate and buildings	21,675	
Materials and supplies	21,105	
Furniture and fixtures	2,235	
Tools and implements	4,377	
		$920,523
Current Assets—		
Cash	$ 3,292	
Casualty fund	45	
Bills and accounts receivable	2,591	
Earned rents unpaid	11,548	
Unpaid tolls and accounts	3,545	
Bonds in treasury of company	45,000	
Prepaid taxes and insurance	3,323	
Stock of other companies	50	
		69,394
Unamortized bond discount	$ 9,292	
Franchise and good will	275,126	
		284,418
Total		$1,274,335

LIABILITIES.

Bonds, 5 per cent. first mortgage	$ 50,000	
Bonds, 5 per cent. refunding	177,000	
Bills and accounts payable	102,144	
Accrued pay rolls, payable Jan. 5, 1916	5,624	
Interim stock certificates	5,943	
Preferred stock issued	489,711	
Common stock issued	272,225	
Depreciation reserve	77,081	
Undivided profits January 1, 1915..$80,266		
Undivided profits January 1, 1916.. 14,340	94,607	
Total		$1,274,335

The officers and directors of the company for 1916 are as follows: Clyde O. Trask, Saginaw, president; William F. Hemmeter, Saginaw, vice-president; James P. Gibbs, Saginaw, secretary and treasurer; Warren B. Serviss, Saginaw, general manager; R. Bruce McPherson, Howell; Gerritt S. Ward, Alma; Edward Carrington, Bay City; John Leidlein, Saginaw; Charles B. Curtiss, Bay City; Charles E. Lown, Saginaw; A. H. McMillan, Bay City, and Charles W. Liken, Sebewaing.

Earnings of Chicago Telephone Co. for 1915.

The financial report of the Chicago Telephone Co., recently made public, reflects the general improvement in business which prevailed last year, compared with depression of the preceding period.

Operating revenues for the year ended December 31, 1915, totaled $17,559,533, comparing with $16,229,368 in 1914. The net ings applicable to dividends were $3,163,048, compared with $2,570,597 the year before. The balance is equivalent to 11.71 per cent. on $27,000,000 capital stock, as against 9.52 per cent. in the previous year.

The income account for the year is compared with that of the preceding year below:

	1915.	1914.
Operating revenues	$17,559,533	$16,229,368
Operating expenses	12,425,604	11,841,478
Net operating revenues	$ 5,133,929	$ 4,387,890
Taxes, etc.	1,069,443	1,061,875
Operating income	$ 4,064,486	$ 3,326,015
Other revenues	152,321	283,050
Gross income	$ 4,216,807	$ 3,609,065
Deductions	1,053,759	1,038,468
Net income	$ 3,163,048	$ 2,570,597
Dividends	2,160,000	2,160,000
Other appropriations of income	206,000	4,375
Surplus	$ 797,048	$ 406,222

The balance sheet as of December 31, 1915, follows:

ASSETS.

	1915.	1914.
Plant—		
Intangible capital	$ 1,228	$ 1,280
Land and buildings	6,906,199	6,242,135
Telephone plant	51,522,721	48,536,494
Total plant	$58,428,920	$54,778,629
General equipment	856,256	814,464
Other investments	203,370	98,811
Total investments	$59,489,774	$55,693,184
Working assets	2,531,106	3,953,423
Accrued income	996	659
Deferred debits	248,630	158,511
Total assets	$62,270,506	$59,805,777

LIABILITIES.

	1915.	1914.
Capital stock	$27,000,000	$27,000,000
Funded debt	19,233,417	19,049,950
Bills payable	8,500	5,500
Accounts payable	1,802,988	1,901,530
Accrued liabilities	1,080,513	971,384
Deferred items	921,884	812,982
Reserve for depreciation	10,263,167	8,885,517
Appropriated surplus	103,000	2,000
Corporate surplus	1,857,037	1,176,914
Total liabilities	$62,270,506	$59,805,777

On December 31, 1915, the company had 504,124 owned stations, an increase of 35,405 over 1914; 10,410 connecting and miscellaneous stations, an increase of 649; making a total of 514,534 stations, an increase of 36,054 over the preceding year. The company has 1,489,544 miles of wire, an increase of 139,311 and 154 central offices, an increase of three over the previous year.

President B. E. Sunny, in his report to the stockholders, said in part:

"The fact that we added over $7,000,000 to the plant in 1914, partly to provide for a normal increase in telephones in 1915 which was not being realized, and the uncertain financial outlook, led to a curtailment in the construction program for 1915, which was reduced by more than one-half, as compared with 1914. Our construction program for the year 1916 covers an outlay of $6,546,000.

The general improvement in business in the last half of 1915 almost made up, however, for the earlier unfavorable conditions which, together with economies secured through improved plant conditions and increased efficiency in all departments, has resulted in a satisfactory showing for the year. We had 11,861 employes at the beginning of 1915 and 12,794 at its close."

At a meeting of the stockholders of the Chicago Telephone Co., held February 9, the following were elected directors: U. N. Bethell, Alonzo Burt, D. Mark Cummings, Angus S. Hibbard, Marvin Hughitt, Chauncey Keep, Robert T. Lincoln, W. H. Miner, John J. Mitchell, B. E. Sunny and Theodore N. Vail.

Keystone Earnings for January.

The Keystone Telephone Co., of Philadelphia, Pa., has issued its comparative statement of earnings for the combined companies for the month ended January 31, 1916, as follows:

	For Month Ended Jan. 31, 1916.	Year Previous.	For One Month Ended Jan. 31, 1916.	Year Previous.
Gross earnings	$117,109	$109,887	$117,109	$109,887
Operating expenses and taxes	58,399	54,948	58,399	54,948
Net earnings	$ 58,710	$ 54,939	$ 58,710	$ 54,939
Less interest charges	27,453	26,388	27,453	26,388
Net surplus	$ 31,257	$ 28,551	$ 31,257	$ 28,551

Practical Subjects—Letters and Discussions

"Telephony's" Home Course for Telephone Men.
(Not meant for study.)
By Well Clay.

THIRD JOLT.

Some love to dwell on the prairies wide
Where soft winds do ever blow,
And some tarry in the shadow of the pines
In the land of the ice and snow;
Some there are who dwell by the shore,
Within sound of the noisy sea;
But I will dwell with my father-in-law—
Because it comes lots cheaper for me.

That was the way with us on the matter of reforming our business. So I concluded to stick a while on the old plan to see what would come of it, because "it came lots cheaper to me," apparently. But it soon turned out like what the young man in the above verse might find to be, at the sacrifice of something else.

We had lots of patrons and everything seemed lovely, on the surface, but away down under the surface—and in the cash drawer—there seemed something lacking. We didn't know just where to catch hold to take up the slack. We had made some mistakes, of course, in building—everyone does—but there didn't seem to be enough of them to throw the whole system out of gear financially.

Then one day I got a real scare: A very important individual appeared at the plant and came right into the office without knocking. He seemed to feel that I was expecting him, for he came over and stood around in a rather expectant attitude. I asked him what we could do for him, but I knew all the time that he wasn't going to *pay me* anything. He didn't look that kind.

"Why," said he, "I'm here, y' know."

"Here!" I faltered. "Well, what can I do for you and what is your name?"

"My name! Didn't Mr. Common Sense tell you?"

"Well, no; that is to say, yes. I mean he told me a lot of junk about a lot of people, which passed in one ear and out at the other—y' know how that is when a fellow gets prosy and you are thinking of something else. So I don't quite place you."

"My name is 'Depreciation'—a very old family, very set in our ways."

"Oh yes," said I, "I do remember Mr. Common Sense mentioning you. But I thought you might be only one more of his numerous friends, for whom he was seeking a situation, and let it go at that. Great old nut—that Common Sense, isn't he?—always worrying about something away in the future and never letting any one rest who will listen to him."

I tried to pass it off with a joke, but the fellow kept standing round and didn't get tired and go away when I tried to act like it was my busy day.

Finally I asked him what he wanted anyhow.

"Oh, just the usual rake-off," said he.

"How much is that?" I asked.

"Oh, different amounts with different plants. Sometimes I take only 8 per cent. and then again I get as high as 20."

"Great Scott! Do you mean to say I have got to stand for a rake-off every year to you? Do you?

"I won't stand for it and the plant can't. We can't earn enough money as it is to keep things going as we'd like."

He just smiled at me and sat down like he was going to be a sticker—which he was—and said:

"Come now, don't get riled up and tell me what you are going to do and what not. Take it calmly.

"I am not worrying about my rake-off—I'll get that anyhow. In fact, I have got all that is coming to me up to date and so has my deputy, Mr. Obsolescence, who works with me, to say nothing of several others who labor in a smaller but similar capacities. I want to be recognized in the profession—get my name on the books, y' know, and all that sort of thing. Helps us along with our next job and saves trouble afterwards—like we are having **now.**"

"How do you mean, you've got *yours* already?" I asked.

"Oh! We took it as we went along—a little here and a little there, where it wouldn't be noticed much at first. A little rust, a little rot; losing a few tools here and there, y' know."

Well, I saw he was right, and not only right but his few meager statements in explanation to my inquiry merely opened the door where I could look through and see not only the helpers that he had named but a host of others whose only business was to keep us humping merely to keep out of their clutches.

I saw fully for the first time the total unfitness of Dollar a Month and Free Service for their jobs and, like a good soldier, I capitulated, when overwhelmed, and sent for Mr. Common Sense to help me make terms with the enemy.

If you think that he has been on the job ever since, you will think wrong. But we have tried to keep Mr. Common Sense reasonably busy most of the time since. However, those pestiferous predecessors of his keep coming back and butting in on every little thing. I never saw such persistent blatherskites as Rumor and Supposition are. If we start out to do the least little thing, they are right on hand, spreading 'round and telling how the job should be handled. Sometimes they have had just an inkling of a correct solution. But we have found that in the most cases, one cannot place much reliance on their statements and have to call in Mr. Common Sense to help out with a solution.

As I started out to say, before I digressed from a postscript to a pamphlet, facts are curious things but very useful about the house if you are sure you have the right brand and know how to mix them with your business.

QUIZ QUESTIONS FOR REFLECTION.

At what station should one alight from the Train of Progress?

Which one are you at now?

Are you going the whole way or just up the line a bit?

Have you ever fooled the conductor of the Train of Progress, or have you had to pay full fare as far as you have gone?

Have you had about enough of this line of dope?

Dr. Pupin Announces Static Has Been Overcome.

At a recent meeting of the New York Electrical Society in New York City, Dr. Michael I. Pupin spoke on "Wireless Transmission Problems" to an audience numbering over 300. Not only were various problems involved in the recent new triumphs in long distance talk transmission analyzed and solved with a simplicity and clarity which delighted those who had the good fortune to be present, but Dr. Pupin stated that one of the greatest discoveries in history, the conquest of the menace and bugbear of all time—the static—was about to be given to the world. He stated that this discovery, which had cost him seven years of experimentation, not to mention the work of others, will make possible the transmission of messages by wireless telephone to every part of the world.

Improving the Operators' Answering Time.

For a little over three years we have paid our operators in accordance with an efficiency schedule. It may be of interest to TELEPHONY's readers to know with what degree of success the scheme has worked out. The following record

of the past three years shows the average time, in seconds, taken by the operators to answer the subscribers' signals.

Year	City	Rural	Recall	Yearly number tests made
1913	2.94	5.40	3.2	6,000
1914	2.70	3.94	2.9	7,030
1915	2.70	3.70	3.5	6,168

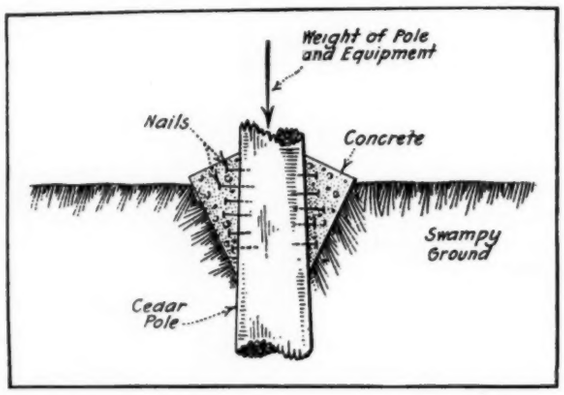
I believe that you will agree with me that our subscribers are getting excellent service and that we must have a pretty "live" lot of operators.

H. G. Addie, Superintendent,
Cresco, Iowa. Northern Iowa Telephone Co.

Preventing Poles from Sinking Into Swampy Earth.

When poles are set in swamps they may be held in a vertical position by proper guying, but under such conditions something besides guy wires must be used to prevent them from sinking axially into very soft, yielding earth, says a writer in the Electrical World. Poles bearing heavy apparatus or poles under compression due to the line itself are especially liable to sink. This tendency was overcome by the builders of an Ohio transmission line by the scheme shown in the accompanying illustration.

At the ground line and just below, heavy nails were driven part way into the pole, as shown. Around the pole and over these nails a circular, wedge-shaped section of



Wedge-Shaped, Concrete Collar to Prevent Poles Sinking.

concrete was molded. The nails held the concrete firmly to the pole, and the concrete itself gave sufficient additional bearing surface to prevent further sinking.

Fighting the Octopus.

Yes, we all fight the Octopus, and strangely enough, the Octopus is the other fellow.

Not long ago in talking with a traffic manager, I asked: "Why don't you take over the Bell?"

He replied: "We have all the terminal facilities. We reach more places than they and we now get all the business, why divide it? As a business proposition, it would not pay."

The Bell interests, though, are compelled to operate a local exchange in this city, just for terminal facilities, or else wipe this city off their map. They practically give the service away. This, also, is a business proposition, a losing one that pays.

We, as Independents, are glad that this is so. Economically it is wrong, of course, but why worry? We have just put one over the Octopus.

If conditions all over the United States could be fairly analyzed, the chances are that it would be found the Octopus is as much trampled as we poor Independents, who have the big end of the telephone investment.

Yes, our company is Bell connected. The Bell gets the overflow, that portion of the business which our own and connecting companies cannot handle. Why don't they get more? Because we are limited as to routing, use of our own mileage, and other things that make it uneconomical, and at times annoying to use its facilities. It, however, is the loser and these things will be adjusted whenever it gives its traffic conditions intelligent attention.

This trouble, though, isn't strictly limited to the Bell companies. We are all guilty and we must constantly adapt ourselves and our business to economic conditions. If we do not right these aggravating and uneconomical conditions, the government will. Oklahoma and Michigan already have ruled that the most direct line shall be used regardless of ownership. This should have been done without the government club.

Every time we get in a fuss and advertise our incompetence—every time we shout: "Trust, monopoly"—we only add so much more fuel to the socialistic fire of government ownership. Let us, therefore, be more willing to adjust matters in a business-like way.

The telephone industry, as a whole, has been greatly benefited by the advertising campaign of the A. T. & T. Co. We have all been too slow to educate the public to a proper appreciation of its telephone service. The public takes good service as a matter of course. This is a subject that might well be considered by our national association.

"Corporation baiting" is rather going out anyhow. At any rate for us who are all "grafting utilities," it is mighty poor policy to rock the boat.

In order to get a little nearer to the other fellow and to aid the telephone industry as a whole, there is at least one place we ought to be able to meet on common ground. We are all confronted with technical problems. Why not have a society of telephone engineers?

Paulding, Ohio. Ward H. Snook.

Telephone Order System in New Jersey Hotel.

A telephone order system has been installed by the Ritz Co. in its lunchroom at Plainfield, N. J. Each table is equipped with a telephone which is connected with the kitchen. Upon making his selection from the menu whose dishes are indicated by number, the patron lifts the receiver of the telephone at his table and gives his order to the party in charge of a switchboard in the kitchen.

This order system is similar to the telephone soda fountain installed by J. George Smith in his two confectionery stores in Minneapolis and St. Paul, Minn., and described in TELEPHONY of February 13, 1915.

Service First.

Service, service, service,
Ever before us, presents its claims
Regardless of our ills or aims,
Vigorously urging us not to shirk
Interest in our work;
Calls all to be on the alert
Ever a complaint to avert.

Faithfully responding to its call,
In us, the manager has his pleasure.
Reliance has been our treasures.
Service ever our motto to do,
Tired, tried, trusted and true.

Cleveland, Ohio. J. W. Hepner.

Bowling Contests to Be Held by Telephone.

The four teams of the Texas Tenpin Association, located at Houston, Brenham, Byran and LaGrange, Texas, have arranged to bowl their contest games on their own alleys, exchanging scores as they are made, over long distance telephone lines. The first "telephone match" was held recently, and others are to follow.

Fundamental Principles of the Telephone Business

A Reading Course Designed to Present Logically the Principles Which Underlie Successful Organization and Operation of Telephone Properties—Prepared Under the General Supervision of Stanley R. Edwards—Part I, Telephone Economics, by James H. Shoemaker, Completed June 26, 1915—Part II, The Corporate Telephone Organization, by J. C. Kelsey and S. R. Edwards, Completed September 25, 1915—Part III, Telephone Accounting and Auditing, by James H. Shoemaker, Completed January 15, 1916—Installments Now Being Presented Comprise Part IV, Telephone Finance, Written by J. C. Kelsey and S. R. Edwards

Quiz Questions on the Preceding Installment.

21. Define fixed and quick assets.

22. Into what groups are corporate assets divided?

23. What are the borrowing values of fixed assets? What kinds of loans are based upon the other assets?

24. What is the basis of stock issues? Why?

25. Define short-term loans. From what sources are they obtained?

26. What is the most simple form of a short-time loan? State what may be a result of taking too great advantage of extended trade credit.

27. Why do banks confine their loans to demand paper and short-time loans? Is character an asset when seeking a loan from a bank?

28. What is a customary procedure of a bank before making a decision relative to granting a loan? State some considerations which influence bankers in deciding whether or not to grant a loan.

29. Name some practices which do not meet with favor of bankers.

CHAPTER III. Short-time Loans (Continued).

30. *Relation of Quick Assets to Quick Liabilities.*—No company can accept credit with safety to its stockholders when it brings the amount of quick liabilities too close to the total of its quick assets. In current business relations, the total assets have little to do with the matter of credit. It is a question of quick assets in this daily business life. A company must have cash to meet its accounts when due—no other asset will satisfy. Some of the largest railways and business institutions have failed and gone into the hands of receivers because they were unable to pay relatively small obligations. Among these may be mentioned the Westinghouse Electric Mfg. Co. in the fall of 1907, the Rock Island railroad, the American Union Telephone Co., the Booth Fisheries, etc.

Some corporations protect their bondholders by contracting that a certain proportion of quick assets over quick liabilities shall be maintained at all times. Such a contract as this caused the Republic Iron & Steel Co. to suspend its preferred dividends in 1908. It had been agreed to maintain a certain definite surplus of quick assets and thereby prevent loss of the property through foreclosures.

The average company, at least the conservative one, will not allow its payables, or quick liabilities, to run much beyond 75 per cent. of its quick assets. Many telephone companies have gone into debt far beyond their means simply because trade credit has become the habit.

31. *Reasons for the Short-time Note Financial Plan.*—Sometimes it is desired to obtain short-time funds for a period longer than that for which they may be obtained from trade creditors or the banks, so the sale of notes to the public is resorted to. A corporation note is merely an expedient to carry the corporation over a period when bonds cannot be sold to an advantage.

The largest bond buyers are financial agencies, saving banks, trust companies and insurance companies. During money stringency, these concerns prefer to loan at the high prevailing rate of interest, so that the purchase of low-rate interest bonds practically stops. The tide even turns the other way, the bonds being sold instead of bought.

This same money stringency disturbs another group of negotiable bond buyers. It is comprised of those concerns which have current fat and lean financial periods, such as merchants, manufacturers or individual bond buyers. During stringency periods, this class of buyers naturally keeps out of the market, and is more inclined to sell than buy.

It was and is these conditions which gave birth to the short-note financial plan. These notes, in sizes from $100 to $10,000, run from one to ten years, but usually are limited to two or three years.

32. *Precautions Regarding Note Issues.*—Notes should never be issued unless there is some definite plan of payment. The note method of obtaining funds is risky because at the time of maturity, the bond market may be worse than at the time of issue. The Wheeling & Lake Erie Railroad went into bankruptcy because it had a group of notes which fell due in 1908, a very poor time, indeed, to refund, sell bonds or raise money at all. Normally, notes are unsecured, as noteholders have learned to their sorrow.

Noteholders of the Katy railroad's $15,000,000-issue recently shared in defaulted interest with the bond and stockholders, proving that they did not belong to any preferred class. These notes were secured by bonds on a four to three basis, which possibly explains why the notes went into the crash.

It would seem that there is a moral obligation which puts notes ahead of bonds, as the management sells the notes with the knowledge that the bonds exist. It is an act somewhat similar to that of a bank which accepts deposits after the weakness of the bank is known to them.

If a corporation puts out notes with any honest purpose whatsoever, there should be a plan either of saving the money out of income or by sale of bonds at the proper time. Gen-

erally speaking, note issues belong to a class of poor financing. It is not considered a conservative way of doing business, even though it may result in temporary profit.

The recent issue of $50,000,000, two-year, 4½-per cent. notes by the American Telephone & Telegraph Co. to a syndicate of bankers headed by J. P. Morgan & Co. is an illustration of the use of short-time notes. The officials of the company, in view of uncertainties of domestic, financial and business conditions with the close of the war, evidently did not consider this a good time to float an issue of bonds.

Additional capital was required, however, to care for the maturity, in April and May, of $26,325,000, two-year, 5 per cent. notes of several of the subsidiary companies, and also to provide for the increased expenditures for new construction, contemplated for this year. It will be observed that interest charges are considerably reduced by this issue. It is understood that those comprising the syndicate have retained the notes as an investment and did not offer any of them to the public.

CHAPTER IV. Long-Time Loans.

33. *Bonds and the Security Back of Them.*—In the consideration of borrowed capital, mention has been made of bonds. When the use of money is desired for a period greater than may be obtained through short-term loans, bonds are issued as a means of securing it. Bond issues naturally are based upon tangible, permanent, or fixed assets. Should the bondholders take the property, they will find physical assets sufficient to satisfy their claims.

The value of fixed assets is still an open question, especially since state commissions have come into existence. Their value is generally taken as the cost of duplicating them.

With public utilities, the question of earning power so far has had little to do with the value of the property. The concensus of opinions seems to verge upon the replacement value of the property, less its depreciated value. When it comes to a mine, factory or a mercantile business, the earning power is a predominating factor.

When it comes to first mortgage bonds, the stability of the property as well as income must be considered. A corporation mortgage is regarded as a lien on the property, no different at bottom than a mortgage given by an individual on his farm or home.

34. *Coupon and Registered Bonds.*—There are two general classes of bonds, coupon and registered. The coupon bond has attached to it a series of promissory notes which represent the interest for specified periods. To collect this interest at a certain date, the coupon is clipped and deposited with a bank. The latter forwards it to the place of payment designated.

The registered bond has the name of the owner entered upon the bond as well as upon the books of the corporation. At interest time, the owner receives a check for his interest without the necessity of clipping and forwarding the coupon. There is a disadvantage of a registered bond in one respect: It is the possible delay in sale by reason of the care and detail needed in making the transfer between the parties. However, this care precludes the possibility of difficulty and loss by theft and fire. The coupon bond is more or less a sort of a free lance.

35. *Denominations and Life of Bonds.*—The ordinary denomination of a bond is $1,000. No coupon bond has a higher denomination but registered bonds run as high as $5,000. Coupon bonds come in smaller sizes than $1,000, such as $100 and $500.

Bonds may run for a length of time that no corporation or creditor can change or they may run for a term which the corporation can shorten but not increase. The life of bonds is determined by the existing condition of a corporation's credit. If it is a new corporation, the management may see a time ahead when its credit will improve. In such a case the officers might want to refund the bond at a lower rate of interest. There is a danger, however, that men are too optimistic, so enough time must be allowed for the company's credit to reach an unquestioned point of advantage.

36. *Gold Bonds.*—There was a time when a gold bond was considered highly important. Possibly in Europe, today, it is necessary, as it was in the United States after the Civil War and during the greenback and free silver agitation, to define that bonds shall not be paid off in depreciated currency. A bond, after all, is a security which is intended to be worth dollar for dollar—in other words, absolute safety is the goal of a debt of this kind.

37. *Confusion Due to Misnaming of Securities.*—There has been much misnaming of securities, the most flagrant being the so-called municipal district irrigation bonds. Many people bought these bonds under the delusion that they were of a class of municipal security. They were no better than the stock of any concern which hopes some day to earn something. No wonder the bottom dropped clear out of this class of paper.

(To be Continued.)

Work Begun on New Exchange in Toledo, Ohio.

Work has begun on the new branch exchange of the Ohio State Telephone Co., in Toledo, to relieve the main exchange on Huron street. The building which will be located on Islington street, between Lawrence and Maplewood avenues, is to be of concrete, brick and steel construction and two stories in height.

The new exchange will have 4,800 lines installed and an ultimate capacity for 7,500 subscribers. It will represent an expenditure of $200,000.

Large Construction Program of Chicago Telephone Co.

When the proposed issue of $3,000,000 Chicago Telephone Co. stock has been approved by the Illinois Public Utilities Commission it will be offered to stockholders at par, pro rata with present holdings. With this issue the company's total $30,000,000 authorized stock will be outstanding. According to President B. E. Sunny, the company's general construction program this year will require over $5,000,000.

Convention of Nebraska Independent Association.

The Nebraska Independent Telephone Association will hold its annual convention in the Garden Room of the Lincoln Hotel, Lincoln, Neb., Tuesday and Wednesday, March 28 and 29. All the rooms on the parlor floor of the hotel have been reserved for exhibits. Exhibitors may make reservations direct with the hotel or through the secretary of the association, L. E. Hurtz, of Lincoln.

To Place Wires Underground in Kenosha.

The Wisconsin Telephone Co. has approved an estimate of $60,000 for the placing of wires of the company underground in the business district of Kenosha. Engineers will at once start the work. According to an ordinance passed by the Kenosha council all wires must be underground not later than July 1.

Proceedings Before Commissions, Courts and Councils

Discussions and Rulings of State Bodies Having Supervision Over Telephone Companies, Decisions of Courts in Matters of Interest to Public Utilities and Actions of City Councils Relative to Franchises, Rates and Service

Right of a Company to Enter Village Already Served.

The Minnesota Railroad & Warehouse Commission, on February 15, made an informal ruling upon the question as to whether a telephone company can construct an exchange outside the limits of a village in which an exchange is already furnishing service to local subscribers, and, without the consent of the commission, extend its poles and wires and also install telephones within the village for the purpose of giving local service therein.

In answering this question in the negative the commission refers to Section 13 of the telephone act, which reads as follows:

> No local telephone exchange shall be constructed or installed in any city or village for furnishing local service to subscribers in such village or city, where there is in operation in such village or city a local exchange already furnishing such service, without first securing from the commission a declaration, after a public hearing, that public convenience requires such second telephone exchange.

The law, the commission states, contemplates that telephone companies shall be controlled by state regulations, rather than by competition. Duplication of service is not favored. Where an exchange is furnishing local service within a village no competing company will be permitted to operate therein without a finding by the commission that public convenience requires a second telephone exchange. A local telephone exchange is the telephone apparatus employed and necessary to furnish service between subscribers within a village. The ability of subscribers to talk with each other within the village is the test, and, therefore, it follows that the office or switchboard need not be located within the village.

If a switchboard or local office is established just outside the village limits, and is then permitted to extend its poles and wires and install telephones within the village and engage in performing local service, the purpose of the law would be destroyed, and no protection could be given by the state to the existing exchange. This case is supported by the case of the Citizens Telephone Co., of Eau Claire before the Wisconsin Railroad Commission. Commission Leaflets 23 to 26, page 473.

Injunction to Restrain Sale of Chicago Automatic Denied.

Judge Windes, in the Chicago circuit court, on February 21, refused to issue a temporary injunction restraining the city from approving the sale of the automatic telephone properties of the Illinois Telephone & Telegraph Co. to the Chicago Telephone Co. John Fitzpatrick, president of the Chicago Federation of Labor and head of the Public Ownership League, who filed the injunction proceedings, sought to restrain the sale, on the ground that the $500,000 which the city is to receive as compensation for its rights, is inadequate. He alleges that the transfer of the property will tend to create a monopoly in violation of the Sherman anti-trust law, and that the loss of the city under the proposed settlement will result in a burden on the taxpayers.

Bell Seeks to Change Business Rates in St. Louis, Mo.

A hearing was held by the Missouri Public Service Commission on February 15 relative to the increase in rates for telephone service in St. Louis by the Southwestern Telegraph & Telephone Co. The matter of increase was first heard by the commission more than a year ago. The $158,000 net increase asked for by the company was denied, but in the ruling the commission held the company was entitled to some increase.

The net increase authorized by the commission was placed at $105,000 annually.

The company has now asked authority to put into effect as a test for a year a schedule of rates ranging from $45 yearly to $108, the former for measured service and the latter for unlimited service business telephones.

It was suggested by Chairman John M. Atkinson of the commission, that the $108 rate was too high, and that a $96 rate would be more equitable all around. There was also objection from the commission to the rate for private branch exchanges, namely, $144 for the first trunk line, $132 for the second and $120 for each additional line.

The revised schedule for the proposed test period is as follows, as presented by the officers of the company:

Measured service, $45 for 840 calls; $60 for 1,200 calls; $69 for 1,500 calls; $79 for 1,800 calls; unlimited service, $108 per annum.

An increase in trunk line service is asked, from $133 to $144 for the first trunk line; from $126 to $132 for the second trunk line, and from $114 to $120 for each additional trunk line.

The commission took the proposition of the company under advisement. The company agreed to waive all its objections to the physical valuation of the property of the company made by the experts of the commission.

Hearing on Rates at Sturbridge, Mass.

The Massachusetts Public Service Commission held a hearing recently upon a petition of the selectmen of Sturbridge for a reduction in toll rates by the New England Telephone & Telegraph Co. from Sturbridge to Southbridge. Joseph LaFlamme, of the board of selectmen, said that the company's subscribers in Sturbridge total 74, but that in order to talk to 32 of these stations, it is necessary to call Southbridge and pay five cents a call. Nine stores in Sturbridge have telephones and the subscriber must pay $21 yearly rate to converse with these. The speaker said that even to call the Fiskdale Mills Co., 300 yards from his store, a five-cent toll rate is charged. There are about 1,000 subscribers in Southbridge who pay the same rates as those in Sturbridge.

Clarence G. McDavitt, for the New England company, said that the town of Sturbridge is made up of two communities, Sturbridge, with about 1,200 inhabitants, and Fiskdale, with about 800. In 1902 the company had a class F exchange in Fiskdale, which was then larger than Sturbridge; that is, it had an agent who had a telephone switchboard in his store. Continuous service was not given. There were then about 35 subscribers. In 1908 the subscribers became dissatisfied with the service and the company could not obtain continuous service from the agent. Two courses were open: first, to take the subscribers into the Southbridge exchange, and second, to establish a "potential" exchange at Fiskdale, but running the wires into Southbridge. Thirty-three of the 35 subscribers voted for the potential arrangement.

Last fall a meeting of subscribers was held and the company offered to take them into the Southbridge exchange, to leave them in Fiskdale or to take them into Southbridge and put all the service on farmers' lines. In the first case it would

be necessary for subscribers to pay the regular mileage charge beyond two miles in case of residence, and beyond one mile in the case of business subscribers.

Mr. LaFlamme stated that for Southbridge subscribers the rate on a one-party business telephone would be $36 and for a two-party business station, $27. The mileage rate for one party is $2.50 per quarter-mile and for two parties, $1 per quarter-mile; six-party residence subscribers pay 50 cents per quarter-mile. Residence service in Fiskdale costs $24 for a one-party line and $21 for a two-party service.

The Fiskdale exchange is the smallest in the Worcester and Springfield districts. On the proposed farmers' line, which allows 15 or more subscribers on the same pair of conductors, the residence service costs $18 per year and the business service $25. Mr. McDavitt contended that the company's mileage charges are too low. The hearing closed with the statement by the petitioners that free service should be allowed to Southbridge, which is the business center of the district.

Telephone Consolidation in Vermont.

The Bethel (Vt.) Telephone & Telegraph Co., owned and managed by Carl D. Cushing, has purchased the property of the Rapid Telephone & Telegraph Co., owned by M. H. Hazen, of South Royalton, and about 60 miles of pole line belonging to the New England Telephone & Telegraph Co., hitherto leased by Mr. Hazen. The result will be the consolidation of the Hazen and Cushing systems and the elimination of much duplication in telephone patronage by business men in the towns covered by the consolidation.

Application has been made to the public service commission for the increase of capital stock by the Bethel company from $10,000 maximum to $50,000 maximum, and a hearing on the petition will be held March 9.

Terminal connection with the New England company will be made at Barre and White River Junction. The company will make extensive repairs and improvements to the system.

Toll Between Long Lake and Twin Cities Reduced.

In an informal ruling the Minnesota Railroad & Warehouse Commission, on February 16, granted the application of the Tri-State Telephone & Telegraph Co. for permission to change the toll rate from Long Lake, Minn., to the Twin Cities, from 25 cents for three minutes and 5 cents for each additional minute, to 15 cents for three minutes and 5 cents for each additional minute. The reason for making this change, the Tri-State company states, is that the business between Long Lake and the Twin Cities is becoming more and more a suburban business between Minneapolis and Long Lake.

The new rate becomes effective March 1, and is subject to change upon complaint or investigation by the commission.

State Compensation Law Effective in Pennsylvania.

On January 1, all telephone companies in Pennsylvania began to operate under the new state compensation law and most of them have insured their liability in either the state fund or in the accident insurance companies. This makes an added expense of $20 or thereabouts per year to even the smallest companies. The legislation is similar to that of New York and Ohio.

Delay in Transmission of Message.

Where the agent of a telegraph company, instead of delivering a message to a telephone company to which it was consigned, attempted to discover the addressee's whereabouts through the agency of the telephone company, the telegraph company was liable for the negligence of the telephone company. The court held that conversations between the servants of the telephone company and the telegraph company's agent, as well as conversations between the employes of the telephone company are admissible as part of the *res gestae*, so a conversation showing that had the contents of the message been disclosed to the employes of the telephone company it might have been delivered is admissible. Western Union Telegraph Co. vs. Oakley, Court of Civil Appeals of Texas; 181 Southwestern, 507.

Damages for Hand Injured by Wire.

A jury in the supreme court at Morristown, N. J., recently gave a verdict for $5,000 damages for Dorothy Cheshire, of Dansville, against the New York Telephone Co., and damages of $100 for her father, Robert F. Cheshire. Dorothy Cheshire is seven years old, and it was claimed that her right hand is permanently injured by reason of a shock she received by taking hold of a fallen telephone wire at Dansville.

The defense was that the company had used all prudence and the wire fell as the result of an exceptional electric storm. The current, it was claimed by the telephone company, came from the lines of the Morris County Traction Co. through defective insulation.

Co-operative Company of Nebraska to Increase Rates.

The Nebraska State Railway Commission has authorized the Hamilton County Farmers' Telephone Association, of Aurora, Neb. (a co-operative company) to increase its rates. The order of the commission establishes a rate of $2.50 for business telephones at Aurora and $1.50 for residence telephones to owners of telephones, and $2.50 and $1.75 to renters.

At the exchanges in Doniphan, Giltner, Hampton, Marquette, Hordville, Phillips, Stockham and Trumbull, the owners of instruments will pay $1.75 and $1.25 and renters will pay $2.25 and $1.50. Farm line rates throughout the system will be $1. A discount of 25 cents a month will be made on bills paid before the 15th of the current month. The new rates are effective March 1.

Agreements as to Rates.

A written contract for the performance of telephone service, which contained no provision as to the duration of the contract relation or the time within which the services were to be performed, is held to be manifestly incomplete, and parol evidence to supplement and explain the written provisions is admissible.

It is also held that the mere enactment of the Kansas public utilities statute did not abrogate agreements as to telephone or other public utilities service, rates, and tolls, and the publishing and filing of a schedule of rates with the commission did not of itself operate to annul such agreements. Kaul vs. American Independent Telephone Co., Kansas Supreme Court, 147 Pacific, 1,130.

Franchise for Proposed Merger in Waxahachie, Texas.

A tentative franchise for the proposed merger of the exchanges of the Southwestern Telegraph & Telephone Co. and the Texas Telephone Co. in Waxahachie, Texas, has been prepared by General Manager J. B. Earle, of the Texas Telephone Co. and a committee of the chamber of commerce, for submission to the city council.

Summary of State Commission Hearings and Rulings.

COLORADO.

February 14: Hearing set for this date on the investigation of the operations of the Mountain States Telephone & Telegraph Co. in the state continued for two weeks.

IDAHO.

February: Complaint filed against a charge of 35 cents per

month in addition to the regular monthly charge, assessed by the Mountain States Telephone & Telegraph Co., on patrons residing just outside the townsite of Pocatello. The residents claim they are in reality in the city because of the growth of Pocatello and they should not be classed by the telephone company as rural subscribers.

ILLINOIS.

February 23: Hearing on application of the receivers of the Central Union Telephone Co. and the Decatur Home Telephone Co. for an order approving the sale and purchase of the Decatur Home Telephone Co., by the receivers of the Central Union Telephone Co. An intervening petition was filed by the Kinloch Long Distance Telephone Co., of St. Louis, opposing the prayer of the petitioner. An intervening petition also was filed by the Kinloch-Bloomington Telephone Co., Bloomington, Ill.; Wabash Valley Telephone Co., Paris, Ill.; and the Citizens Independent Telephone Co., of Terre Haute, Ind., A. L. Staderman and Herman C. Stifel objecting to said sale.

February 23: Hearing on application of Chicago Telephone Co. for an order authorizing the issue by said company of $3,000,000 of its capital stock.

INDIANA.

February: Petition filed by a number of citizens of Monticello demanding a reduction in rates by the Monticello Telephone Co., a connection with the lines of the Citizens Telephone Co., at Buffalo, a repeal of the clause assessing a penalty for failure to pay monthly dues before the 10th of each month, an appraisement of the company's plant and a fixing of the rental rates in accordance therewith.

February 23: Rehearing of the petition of the Cloverdale (Ind.) Telephone Co. for an increase in rates. The increase was granted by the commission a short time ago and as a result about half of its patrons in Cloverdale have ordered their telephones removed.

March 1: Postponed hearing on the complaint of the Martinsville (Ind.) Chamber of Commerce against the Martinsville Telephone Co. alleging poor service.

March 1: Hearing on petition for approval of the merger of the New Long Distance Telephone Co., the New Telephone Co. and the Indianapolis Telephone Co., of Indianapolis, Ind. This hearing was originally set for March 8, but has been changed to this date.

IOWA.

March 16: General hearing on the subject of interference of high tension lines with telephone and telegraph lines.

KANSAS.

February 24: Hearing on application of the Missouri & Kansas Telephone Co. for authority to change rates in the city of Wellington, Kan. Case No. 1153.

MASSACHUSETTS.

February: Hearing upon a petition of the selectmen of Sturbridge, Mass., for a reduction in toll rates by the New England Telephone & Telegraph Co. from Sturbridge to Southbridge.

MICHIGAN.

February 11: Hearing on application of the Manistique (Mich.) Telephone Co. for permission to increase its rates for certain classes of subscribers.

March 1: Final hearing of the Michigan State Telephone Co.'s application for metered rates in the Detroit metropolitan zone.

MINNESOTA.

February 15: Informal ruling made on the question as to whether a telephone company can construct an exchange outside the limits of a village in which an exchange is already furnishing service to local subscribers and, without the consent of the commission, extend its poles and wires and also install telephones within the village for the purpose of giving local service therein. The commission held that such action would be in violation of its interpretation of the law.

February 16: The commission granted the application of the Tri-State Telephone & Telegraph Co. for permission to change the toll rate from Long Lake, Minn., to the Twin Cities from 25 cents for three minutes and 5 cents for each additional minute to 15 cents for three minutes and 5 cents for each additional minute, effective March 1.

February 16: The commission granted the application of the Northwestern Telephone Exchange Co. for permission to purchase the telephone property of A. Fitch, of St. Paul Park, Minn., the purchase price being fixed at $300.

March 3: Hearing on application of the Northwestern Telephone Exchange Co. to purchase the majority of the stock of the Citizens Telephone Co., of Montevido, Minn.

MISSOURI.

February 12: Application filed by the Missouri & Kansas Telephone Co. for authority to issue $8,000,000 of 4½ per cent. notes due in two years. Two years ago the company issued a like amount of notes bearing 5 per cent. interest and the issue sought is to take up the old obligations.

February 15: Hearing on application of the Southwestern Telegraph & Telephone Co. for authority to put into effect as a test for a year, a schedule of rates ranging from $45 yearly to $108 for measured service and for unlimited business service. An increase for trunk line service is also asked.

NEBRASKA.

February: Marsland (Neb.) Telephone Co. given permission to increase the rate for business telephones from $1 to $2 and for residence telephones from $1 to $1.50.

February: Citizens Telephone Co., of Minatare, given authority to issue $1,264 worth of stock.

February: Nebraska Telephone Co. given authority to make some changes in toll rates at Stockville, also to change its rates at Emerson, making the farm line telephones $1.50 per month, and to cancel four-party residence service.

February: Hamilton County Farmers Telephone Association, of Aurora, Neb., authorized to increase its rates at most of its exchanges 25 and 50 cents per month.

February: The commission granted leave to the Lincoln Telephone & Telegraph Co. to discontinue its exchange at Inland, Neb., where it had but 37 subscribers. These subscribers will be given either Hastings or Harvard exchange service for $2 and $1.50 per month.

February: The commission authorized the Lincoln Telephone & Telegraph Co. to discontinue the so-called free service between Silver Creek and Osceola. The order applies to messages over the Lincoln company's toll line originating on farm lines of the Nebraska Telephone Co. at Silver Creek, extending across the Platte river and into Polk county, destined to parties on the exchange of the Polk County Telephone Co. at Osceola.

February 25: Postponed hearing on the application of the Lincoln Telephone & Telegraph Co. for permission to increase its farm line rate at Wahoo, Neb., from $1 to $1.25.

NEW YORK.

February: Complaint filed by C. A. Edward, of Freeport, against the New York Telephone Co., alleging excessive charges between points in Nassau county and New York City.

OHIO.

February 12: Application filed by Amherst (Ohio) Home Telephone Co. for permission to issue and sell $10,000 of its capital stock for extensions to be made and betterments and replacements completed.

March 7: Hearing of complaint of T. R. Plank, M. Farnsworth, A. H. McKitrick, E. A. Wiley, D. H. Sloan and others from the vicinity of Ashland against the Star Telephone Co. The complainants set forth that certain rates of the telephone company are excessive and discriminative, also that the service on certain lines is inadequate.

March 13: Postponed hearing on the protest of the Lima (Ohio) Telephone & Telegraph Co. against the tentative valuation of its property by the commission. This case was to have been heard February 28 but was postponed because of the inability to complete necessary investigation to permit of the resumption of the hearing.

May 3: Postponed hearing on the protest of the Cleveland (Ohio) Telephone Co. against the tentative valuation of its property by the commission. This case was to have been heard March 9 but was postponed because of the disability of the director of law, Mr. Fitzgerald, of Cleveland.

VERMONT.

March 3: Hearing on petition of the Bethel (Vt.) Telephone & Telegraph Co. for permission to increase its capital stock from $10,000 maximum to $50,000 maximum.

WASHINGTON.

February 23: Continued hearing at Tacoma on state-wide investigation of the Pacific Telephone & Telegraph Co. with a view to establish a fair value upon which to base rates.

WISCONSIN.

February 18: Hearing on application of J. E. Baker, et al., for an order requiring physical connection between the Cadott Telephone Co. and the Wisconsin Telephone Co., at Stanley, Wis. U—876.

February 18: Hearing at Fall River in the case of P. J. Girard, et al., vs. the Peoples Telephone Co. U—875.

February 24: Hearing on application of the Beef River Valley Telephone Co. for authority to increase rates. U—880.

February 25: Hearing in the case of the Rosendale Telephone Co. vs. the Wisconsin Telephone Co. as to rates and service. U—708.

February 29: Hearing on application of Baldwin's Mills Telephone Co. for permission to increase rates. U—881.

February 29: Hearing in the case of the City of Lancaster vs. the Wisconsin Telephone Co. and the Farmers Telephone Co., relative to physical connection. U—871.

Practical Methods of Locating Telephone Cable Trouble

Supervision and Co-operation in Cable Maintenance—Old and New Methods of Locating Trouble—What a Matthews Woodpecker Telefault Means to the Telephone Man—Paper Presented at Convention of Kansas Independent Telephone Association

By O. F. Tallman

Before we all get busy and interested in the methods of locating troubles with which all telephone men have to contend, let us first take stock or an inventory of our tools and equipment with which we expect to get results. Are we equipped, when the occasion arises, to get the necessary results, at the least expense and in the shortest possible time?

"Necessary results" means clearing the trouble and restoring the service in the shortest possible time.

"Least expense" means using the latest and most efficient methods and devices to get the "necessary results."

"Shortest possible time" means service to your subscribers. You are marketing "Service."

I am going to confine myself, principally, to the maintenance of cable. This subject will be discussed from the viewpoint of one who has acquired his knowledge from actual experience in cable work. Let us now see how you are equipped for clearing this class of trouble.

First, what are the qualifications of your supervisor or superintendent? Is he sufficiently competent to handle the maintaining of cable and, when the occasion arises, can he efficiently direct the clearing of a cable fault or failure? If you, as manager or superintendent, are the man, ask yourself that question, because one of the quickest and most positive clogs to a cable maintenance machine is an incompetent head—one who draws his salary for a responsibility which he, being too light to shoulder, passes on down the line to a subordinate. The subordinate, quick to note the lack of necessary ability on the part of his superior, also ducks. Finally the blame for failure to produce results, finds a resting place on something unable to pass it further, perhaps a condition, or a tool. In many instances these are the reasons for manufacturers receiving unjust criticism.

There is nothing in the world that will cause an employe to cheat quicker and more consistently than the lack of knowledge and experience on the part of his superior. A superintendent or foreman might be able to occasionally slip it over on his boss, but he can't fool his men.

It isn't always in the smaller telephone plants that the greatest amount of "lost motion," due to inefficient supervision, is found. I remember the following story, told by several employes, of quite a large telephone plant:

It seemed that one of the employes in the trouble department—we will call him Steve—who had a more abundant supply of mental than physical energy, maintained a certain district. A portion of it being suburban, his district was generously populated with the shadiest of shade trees, under which grew the greenest of grass—a very tempting combination on a hot summer day.

Now, Steve's resistance being very low—he quite frequently became grounded—and the magnetic force of cool shade being so strong, his five-bar brain generated the following idea, and thereafter, on all warm days, Steve short-circuited his route.

In his tool bag, Steve carried a supply of ringer or bell coils, several of which when connected in series, and cut in on a line at some convenient pole, produced the same effect on the voltmeter in the wire chief's office as would rusty or high resistance line joints. When a case of this kind was discovered, it was Steve's duty to cut out and remake all these bad joints. By removing 500 or 1,000 ohms' resistance (of ringer coils) every two or three hours from the line, he would appear to the wire chief as one who was doing good, honest work. But in fact, Steve would be working about ten minutes out of each two hours, the other hour and fifty minutes being spent by him much more comfortably under his favorite tree.

What's the answer? Poor supervision. There are numerous instances where a good workman grows lax, slights his work, and kills time for the lack of proper supervision and system. The man in charge of cable maintenance should be familiar with the conditions his men will encounter in the discharge of their duties.

The superintendent of maintenance of a certain telephone company with which I was formerly connected, was unable to judge the time required to complete the simplest of cable assignments. He could overestimate and underestimate time equally well. Such a man is unfair to the men in his charge, as well as expensive to the company employing him.

To co-operate with the men doing the work is good policy. They are the ones who know the true conditions, especially so in the case of cable troubles, because of the varied conditions of cable trouble and because they are actually on the job.

Another way of co-operating with the troubleman is to furnish him with good dependable tools with which to do his work. It doesn't take long for a poor, run-down, incomplete kit of tools to run the cost of cable maintenance up to a figure that would supply a dozen telephone plants with a complete outfit of tools. While on this subject I want to mention the most important item in the equipment of the troubleman. It is the telefault instrument for locating trouble. The actual saving due to this instrument amounts up to unbelievable figures.

There are many here who can remember the long-faced, sad expressions on everybody when a case of cable failure was reported in. Then the operators would get busy notifying all subscribers affected, if still possible to do so, that, due to cable trouble, their telephone would be out of order, indefinitely. The funny part of it was the subscribers were so accustomed to that same song that they rather sympathized with the company and waited patiently until the trouble was cleared.

That was the way it used to be—neighborly.

Those days are no more. The telephone is a novelty no longer. It is now a necessity and all patrons expect, when they take down the receiver, to get service and in furnishing this service, the telefault plays an important role.

In its infancy the induction method of fault location was very crude—a saw or file and a nail manually operated. But at that it was quite an advanced step compared to previous methods.

Out of the old saw and nail methods grew the present improved models for locating trouble and at the head of them all stands "The Matthews Woodpecker Telefault."

Before the Matthews woodpecker telefault was designed,

telephone men in various parts of the country were practically unanimous in condemning whatever instrument they had as being too heavy and burdensome for their men to carry. When a cable troubleman was fully equipped for "shooting trouble," including his instrument, he was very much handicapped in the actual work of clearing his troubles because of the excessive weight he had to carry. With this fact in mind, we applied ourselves to the task of reducing the size and weight of the telefault. The Matthews woodpecker telefault is the result. It weighs 12 pounds less than the type "A" Matthews telefault and less than one-half the weight of some others.

The Matthews woodpecker telefault weighs, fully equipped and ready for business, 15 pounds. It is well proportioned and carries well. The box, itself, is of oak with a hand-rubbed finish. The four bottom corners are rubber tipped to absorb the vibrations, thus making it noiseless—a very desirable feature when using the telefault around the switchboard room, or where the constant humming of a vibrator would be objectionable.

Each instrument is furnished with a weatherproof cover which can be slipped on and off very easily, thus making it perfectly safe to take the telefault out in rainy weather (which, by the way, is when it is usually most needed) without fear of its being damaged. The Matthews woodpecker telefault is the only instrument of its kind with which a waterproof cover is furnished. The case or box is fitted with a neat brass lock for which two keys are furnished. This protects the adjustment of instrument against curiosity seekers. In the lid will be found a diagram showing the connections necessary to secure the best results. Each binding post is numbered and by referring to diagram in lid it is impossible to go wrong.

Tone Test.

The Matthews woodpecker telefault is also a non-interfering tone test set. This feature makes it unnecessary to purchase an extra tone test set. It is specially wired and has extra binding posts for toning or testing and tagging-out cables.

The Name, "Woodpecker."

The name "woodpecker" is used in connection with this telefault because of its similarity in tone to that of a woodpecker hammering on a pole. The tone of the telefault is not an accident for, after careful research, it was determined that the most distinct tone, the tone that was less like any other noise with which the tester was likely to come in contact, was the tone similar to that of a woodpecker hammering on a pole.

The tones of other instruments have met with objection because the sounds produced may easily be confused with other noises on the line. It is a fact that a wind blowing by the ear and the hum of induction caused by paralleling high voltage lines, heard in the receiver when attempting to make a test, are almost impossible to distinguish from the tone of the ordinary buzzer.

The instrument manufactured by W. N. Matthews & Brother, Inc., previous to the woodpecker, was of the high-frequency type and they recognized the fact that the tone was very similar to foreign or outside noises. They, therefore, put into their type "A" telefault what was known as a thermostatic interrupter, which would intermittently make and break the buzzer circuit. Another instrument has a clock arrangement by which similar results are obtained. No interrupting devices are necessary in Matthews woodpecker telefault because its vibrator is built especially to combat these evils.

Why has it always been difficult to make a location of trouble due to wet or damp cables? Because the high voltage employed by many machines in projecting the tone to the trouble in cable, generates a heat which dries up the moisture to such a degree that a location is impossible. Some instruments are operated with four or more dry cells (six volts) and in the vibrator coil, this voltage is stepped up to between 25 and 40 volts. The woodpecker uses one dry cell and projects four volts onto the line. That is the reason why we received this letter from O. A. Knell, superintendent of maintenance of the Tri-State Telephone & Telegraph Co., of St. Paul, Minn.:

Replying to your letter of December 29, we have purchased three of your Matthews woodpecker telefaults, which we are using in the location of all difficult troubles, and find them much superior to anything we have heretofore used.

We have been able, with these instruments, to clear up slight cases of trouble in cable which have been passed up owing to the previous machines drying out the dampness. I can recommend this type of instrument to anybody wishing a first class cable tester.

The low voltage and low frequency of Matthews woodpecker telefault are responsible for our receiving a letter from the North Dakota Independent Telephone Co., of Fargo, N. D., under date of January 4, signed by M. E. Young, the company's engineer.

With regard to the Matthews woodpecker telefault, which we recently purchased on trial and later accepted, we find it vastly superior to other types which we have used.

When in use, its non-interference with working lines makes it especially desirable. Our future requirements for such apparatus will undoubtedly specify "the Woodpecker Telefault."

Matthews woodpecker telefault contains a set of known resistances, with a range of from 10 to 500 ohms, by means of which an approximate location of the fault can be made before leaving the central office.

This resistance meter requires no expert to operate as is the case with other resistance-measuring instruments. The tester can make a location with this meter within five ohms of his trouble. This feature saves considerable time in locating cable troubles. It can also be used to advantage in approximating the distance to trouble on open wire toll circuits.

Because the woodpecker exploring coil is so much more sensitive than other coils, it is easy to locate faults of much higher resistances with it. A large percentage of cases are high resistance faults, and this fact makes this coil the only one with which a location can be made in cases of this kind. The following letter from R. B. Still, superintendent of the Gulf States Telephone Co., Tyler, Tex., under date of December 31, 1915, will prove my statement:

I have your letter of the 29th inst., concerning Matthews woodpecker telefault which we received from you some weeks ago and am glad to be able to advise you that the same is giving entire satisfaction. It is the only set which we have been able to locate that will give the results which we have received from it. We have been able to locate slight dampness in cables where only three to four volts would be registered on the voltmeter.

I will again say that we are mighty well pleased with the woodpecker telefault and that we will forward you further orders for these sets as we require them.

On January 2, 1916, we received orders from Mr. Still for two more instruments.

The container or case for the coil is made of Bakelite, a composition much harder than rubber, which makes it more able to withstand the treatment to which exploring coils are subjected. The question has been asked: "Would not a metal case for exploring coil be less likely to become broken?"

Yes it would, but we felt that the question of safety to the tester in working around high voltage wires is more to be considered; therefore, the insulated case.

The details of the telefault have been gone into because telephon men, as a rule, have no time for detail observation. They judge an instrument in an off-hand way and either say, "Good" or "No Good." An instrument must be right in detail, to do the work of the telefault. That is the reason for its assembled perfection and efficiency of action.

In allowing seven claims on the woodpecker exploring coil, the United States Patent Office by that act says:

"W. N. Matthews & Brother, Inc., have embodied in the woodpecker exploring coil, seven features which are improvements over any similar device on which a patent has been granted."

Queries on Theory and Practice

Farmer Line Arrangements and Railway Crossings.

We have four or five farm lines, all grounded, running three miles straight south of town. There is no subscriber connected for the first three miles. We would like to give a few of our subscribers on the lines metallic service. I have been thinking that, perhaps, by installing a phantom or repeating coil in the office and one at the subscriber's station we could leave the grounded lines as they now are, and then make a metallic line out of the two grounded lines into the office.

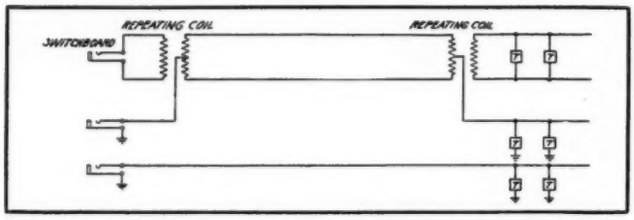


Fig. 1. Metallic Line Service for Some Subscribers.

The railway company has changed its standard of heights for wires to clear the rails, and has given orders that all wires must clear by 25 feet. In order to get this clearance, 35 foot poles will have to be used. As they will cost us over $10 each set in place, would it not be better to place all the wires underground at the railroad crossings by running iron conduit and placing lead covered wires in them or to use safety cable as used by the power company, dug right into the ground without any conduit. What do you think about this?

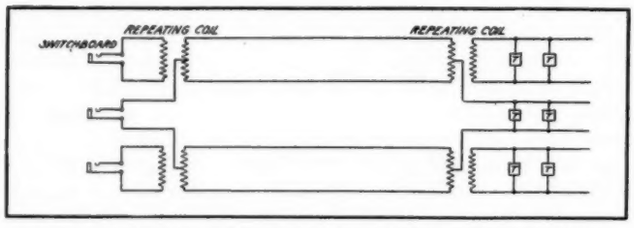


Fig. 2. Extra Wire Gives All Lines Metallic Circuit Service.

There are several courses open to you, any of which will work if properly installed and maintained. If you can not string any more wires, you can arrange them as in Fig. 1. You still have only three telephone lines, but one of them is non-metallic. You can make any disposition of the subscribers that you desire or can get the people to take.

If you can string just one more wire, it opens to you two other possibilities. You can give all three lines metallic circuit service (Fig. 2), or you can get four circuits, two metallic and two earth return (Fig. 3) or grounded phantom. If good coils are used and the line wires have no high resistance joints, are properly transposed, and the insulation is good, there should be no cross talk between the physical lines and any of the phantoms. With the arrangement shown in Fig. 3, however, there will be cross talk between the two grounded phantoms.

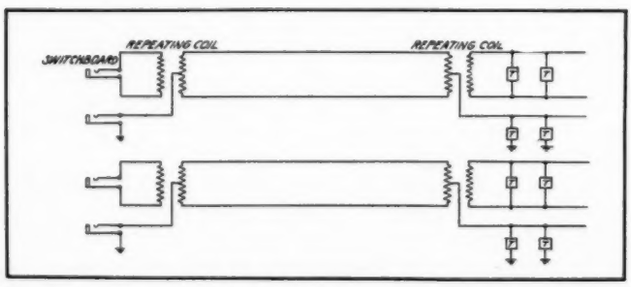


Fig. 3. Two Metallic and Two Ground Return Circuits.

Responsible Independent manufacturers can supply repeating coils for this service.

At a railway crossing, we strongly advise placing your wires inside a good protective conduit all the way across the railway land. It will pay in the long run, even if it costs more at the start. Be sure to protect your iron pipes which lead down the pole into the ground, so that rain will not fill the conduit. The latter should also be sloped to drain out.

Induction on Grounded Lines from High Tension.

We have thirteen grounded farmer lines which are paralleled for four miles by a 16,500-volt high tension line of two wires. Although we are on the opposite side of the road for the entire distance, the induction is so great as to practically put the farmer lines out of service.

The opinion of the power company is that by running a No. 6 or No. 8 common return wire along this lead, we will eliminate most of the induction, giving us practically as good service as if we made each line metallic.

Parties on these lines are now able to talk fairly well locally. But when a toll connection is put up of 12 miles or more, they are unable to hear their party above the inductive noises on the line, making it necessary to repeat each message. What we wish to know is whether or not the running of this common return wire will reduce the induction sufficiently to give first class local and long distance service under all conditions, rain and snow storms and damp weather.

No matter what you do to your lines, you will have to use a repeating coil whenever you connect one of them to a toll line or to earth return circuits. We advise that you connect one of these noisy lines through a good repeating coil to a toll line and see the beneficial effect of the coil by cutting it out while a conversation is in progress.

There is no doubt as to the benefit of the common return wire. Put it up near the center of the lead and keep it insulated. But whenever you connect an ordinary line to one of these insulated return lines, use a repeating coil, otherwise you will ground the return wire and lose part of its good effect. For the best long distance service, each line should be separately metallic.

Grounded Toll Line and 110,000-Volt Circuit.

We have a toll line grounded, paralleling the Chicago, Milwaukee, St. Paul & Puget Sound Railway, but on private right of way—in fact, built on land owned by the ranchers who live along the line—from *A* to *B*, a distance of 48 miles, nearly the entire length of the toll line.

The railroad company started last June to electrify its system, expecting to use a high tension, three-phase, 110,000-volt current transformed to 3,000 volts for traction purposes. The tension line is 14 feet from our toll line for the distance mentioned, 48 miles. We are on our own right of way, and the high tension line is on the railway's. Our line has been in successful operation in its present location for over six years without any protest from any abutting property owner. Our line is grounded in every instance on private property, and not on the public highway, nor on the railroad company's property.

The construction crews of the railroad company ever since beginning work, have made it almost impossible for us to operate our line, placing guys in direct contact with our wire, cutting and leaving it open as long as convenient to them, using baled hay, broom and barbed wire, leaving the line so slack as to endanger public travel crossing highways, breaking off poles in unloading stones and poles, and taking out poles where they had occasion to leave the railway right of way, and throwing them in the river.

Along this line is a sparsely-settled community. Yet the line is of immense value, as it is the only public way of com-

munication that we have to get in touch with the outside world.

We have taken this matter up with the construction company, with the railroad company, and with the foremen and the men on the ground, without any satisfaction. We would like enlightenment on the following:

What effect will this 110,000-volt current have on our grounded toll line? Can the toll line by being made full metallic and properly transposed, be made a commercial success? Can it, at the same time, offer a safe way of communication for the public's use in its present close location, 14 feet for a distance of 48 miles, to a 110,000-volt, three-phase high-tension line? If so, what equipment would you advise.

Will it be dangerous for linemen to handle this grounded toll line while standing on the ground after the current is turned on the high tension line? About what would the voltage be? Would there be more or less danger if the line were made full metallic, assuming in both cases that there was no direct contact, between the high tension and toll lines? At what distance from this 110,000-volt line would it be possible to operate a grounded line, without interference, paralleling as we do for 48 miles?

This high voltage, alternating current will put your earth return telephone line completely out of service, both by its noise and the dangerous voltage induced.

We think it exceedingly doubtful if the line can be made a commercial success, even if made full metallic and properly transposed, as long as it remains so close to the power line.

We do not think that any one ought to try to give public service on such a line. The risk to human life is too great. Insulating transformers have been used between each telephone and the line, but never for so great voltages.

It certainly will be dangerous for linemen on the ground to handle the wires.

Not knowing the distances between wires and ground, we cannot calculate the voltage which will exist between your telephone line and the earth, but feel sure that it will be too high for safety. The danger would be about the same if the line were made metallic.

We do not know how far away the grounded line must be to secure commercial service. A good metallic line 50 feet away should be perfectly safe and quite enough.

In regard to the legal aspects, the courts would undoubtedly uphold a claim for damages due to the activies of the construction crew.

While we can find no decision in your state on the subject, it is the rule that when the telephone company's wires are grounded upon its own property and it suffers injury from conduction due to the escaping current from the railway company, it may recover from the railway company such damages as are occasioned thereby.

This rule is based upon the doctrine that the lawful, harmless and customary use upon one's land, alike of water, air or electricity, cannot lawfully be obstructed or impaired by the injurious act of another, attended with disturbances of natural existing conditions and consequent loss. It is not material that the injurious act is done upon the premises of one other than the party injured. Cumberland Telephone & Telegraph Co. vs. Railway Co., 93 Tenn., 492; 4 American Electrical Cases, 297; 29 S. W., 104; Hudson River Telephone Co. vs. Watervliet Ry. Co., 135 N. Y., 394, 642; N. E., 148; 31 A. S. E., 838; 4 American Electrical Cases, 275; National Telephone Co. vs. Baker Law Reports, 2 Chancery Division, 186; McMillan on Telephone Law, Chapter 11.

Under the latter decision we think you might either restrain the railroad company from doing the act which would injure your use of your lines, or, if injurious consequences follow the building of the line, recover damages for the injuries inflicted. The law applicable to your situation is, we think, stated in the preceding paragraph.

Improvements Planned by Ashland (Wis.) Company.

The Ashland (Wis.) Home Telephone Co. recently closed a 15-year lease for the entire upper floor of the Foeller Block, together with adequate basement room for battery and storage purposes. The company plans to string about 20,000 feet of additional cable and has also closed a contract for the installation of a complete semi-automatic central office equipment. The company expects to expend $25,000, and to have the installation completed by June 15. F. M. Cole is president of the company.

From Factory and Salesroom

Conventions: Iowa, Des Moines, March 14-16; Texas, Fort Worth, March 16-18
Nebraska, Lincoln, March 28-29

Stromberg Equipment for Willys-Overland.

The Ohio State Telephone Co. has placed an order with the Stromberg-Carlson Telephone Mfg. Co., of Rochester, N. Y., for a complete central energy multiple private branch exchange switchboard to be installed in the Willys-Overland plant at Toledo, Ohio. This will be one of the largest private branch exchange installations made in recent years by any Independent operating company.

As ordered, the equipment consists of a six-position special iron frame switchboard arranged three positions per section, each section being six panels wide in the jack space. The first position is a toll position and the remaining five are regular subscribers' lines positions. The switchboard is designed to operate from a 40-volt storage battery and is equipped throughout with lamp line and supervisory signals. All local line circuits and equipment are arranged in accordance with the associated lamp multiple system. The switchboard has an ultimate capacity for 1,200 lines, of which 440 are equipped for immediate operation.

The connecting cord circuit equipments include several service-bettering features which, it is said, are not usually included in P. B. X. equipments. An automatic listening scheme obviates the manipulation of the listening keys each time a call is answered, but emergency keys are provided for special purposes. Another peculiarity of the cord circuit arrangement is that the operator cannot plug into a multiple jack and listen to a conversation that originated through a connection made by another operator.

Included in the other apparatus covered by this contract are a chief operator's desk, relay and terminal cabinet, operators' chairs, pole changer, storage battery and mercury arc rectifier equipment. This private industrial telephone system is larger and more complete than many of the common battery public service installations in many of the smaller cities or towns in this country.

As soon as the manufacture of the equipment has progressed sufficiently, illustrations and further details regarding this installation will appear in these columns.

Western Distributor of Schwarze Products.

Having successfully handled the Schwarze Electric Co.'s products in the Eastern states for the past eight years, the Electric Sales Co., of Boston and New York, has arranged to extend its efforts throughout the West, acting as sole distributor of Schwarze products. Offices have been opened in the Peoples Gas Building, Chicago, where the company is ready to serve its patrons. Several new items have recently been added to the Schwarze line which in-

clude single stroke bells and vibrating horns for alternating current and the feature of closed terminals.

Kellogg Shipments and Orders.

The Kellogg Switchboard & Supply Co., of Chicago, reports many recent shipments of unusual promptness and efficiency. Last week a 600-line magneto "fireboard" was shipped within two days—an excellent example of Kellogg service. This board was less than 30 hours in the shop.

The equipment comprised a standard quarter-sawed oak cabinet of three operators' positions, 45 cord circuits, double clear-out, transfer equipment, and chest-plate transmitters.

For the protection of its customers, especially at this season of frequent fires, the Kellogg company holds in readiness for prompt shipment, a variety of standard switchboards, in sizes up to and including 300 and 400 lines, with cord circuits and all wiring complete.

Sixty orders for switchboards are now in the Kellogg shops —a gratifying number—with telephone orders surpassing all previous sales for many months. "No holding of orders" is the shipping record, as a splendid, complete stock of all standard telephones is maintained.

Another instance of good Kellogg service is the shipping, on schedule time, of 1,500 special telephone sets, where all cabinets were made special, the order requiring the making and assembling of a vast number of parts.

The Kellogg company also reports that orders for its now famous, high-efficiency No. 97 common battery telephone have far exceeded its expectations.

W. H. Matthews & Brother Acquire the Goheen Digger.

W. N. Matthews & Brother, of St. Louis, Mo., on January 31, acquired the business of the Triple Tool Co., of Jacksonville, Ill., thus adding the Goheen pole hole digger to its line of money saving specialties. At the company's annual sales conference on February 8, 9 and 10, this new Matthews money saver was announced and the members of the sales force were asked to suggest a new name for it which would be copyrightable.

"Spoovel" as suggested by the company's Eastern district manager, Warren M. Heim, in view of the fact that it combined a spoon and a shovel. This suggestion met with instant approval and the name of the device is now the "Matthews Spoovel Digger."

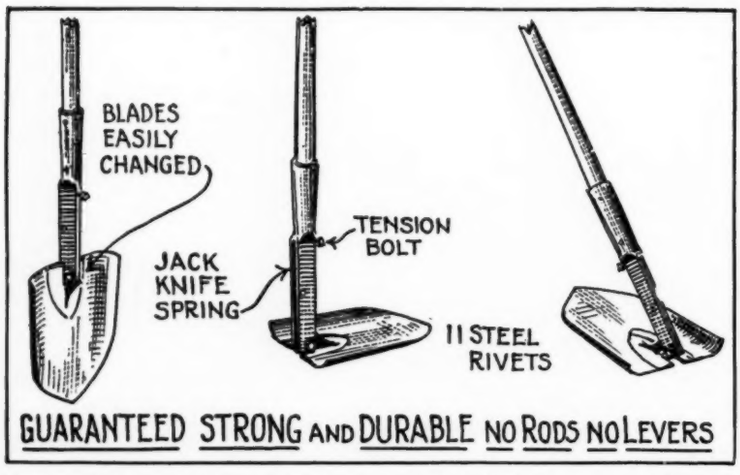
Actual competitive tests have shown that a man can dig two six-foot holes with a Matthews Spoovel digger in less time than he can dig a six-foot hole of the same diameter with a standard shovel and spoon, in ordinary ground. In hard, crumbly ground it is said that the Spoovel digger will beat the old combination two and a half to one—the deeper the hole, the more it will save.

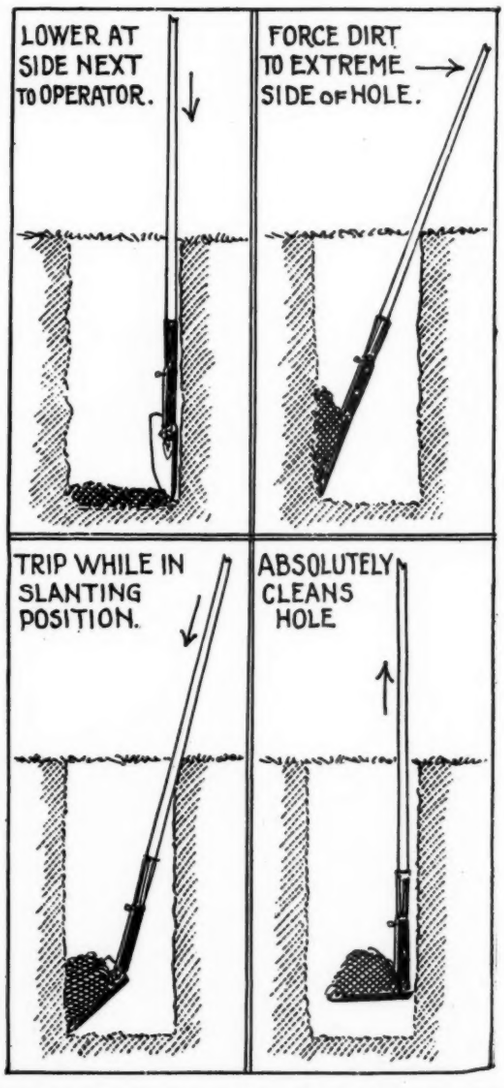
The blade of the Spoovel digger is made of exceptionally good steel and, it is said, it will cut its way through good sized tree roots without fear of damage to it. When the blade wears out, a new one can be purchased to replace it at a considerable reduction in the price, thus utilizing the remaining parts which are not subject to the same amount of wear.

Following their usual custom W. N. Matthews & Brother will guarantee this digger against defects and will ship any number of them on 30 days' free trial to any point in the United States. If the first trial order calls for six or more, the freight will be prepaid. If for any reason they do not prove their value, they may be returned by freight, charges collect.

First Issue of "Hospital Management."

"Hospital Management," published at Louisville, Ky., has made its first appearance, a feature being a department for industrial hospitals. It is announced that this department will be a permanent and important feature of the publication, the idea being to record developments in the rapidly growing field of welfare work. The leading article in "Hospital Management" for February describes the hospital of the Youngstown (Ohio) Sheet & Tube Co., which was recently opened with Dr. Sidney McCurdy in charge.




LOWER AT SIDE NEXT TO OPERATOR.
FORCE DIRT TO EXTREME SIDE OF HOLE.
TRIP WHILE IN SLANTING POSITION.
ABSOLUTELY CLEANS HOLE

Matthews' Spoovel Digger, Showing Three Adjustable Positions—Different Operations in Digging a Hole with the Spoovel Digger.

Record of Telephone Patents Recently Issued

1,168,270. January 18, 1916. PROTECTION DEVICE FOR ELECTRIC CIRCUITS; H. DeF. Arnold, East Orange, N. J.; assigned to Western Electric Co. This device, which is intended for wireless use, consists of the combination of two electric valves, each consisting of an electron-emitting cathode and an anode enclosed in an evacuated tube; two transformers, one winding of each of which lies in a single circuit containing the electric valves; and a source of constant electromotive force connected between the middle points of the transformer windings.

1,168,284. January 18, 1916. SANITARY COVER FOR TELEPHONE MOUTHPIECES; P. E. Claussen, Hartford, Conn. This is a one-piece paper cover having a circular inwardly-bulged body with the external portion of the bulge tapering and adapted to engage the inner surface of the mouthpiece. The outer portion of the cover is in the form of a flange adapted to engage the exterior of the mouthpiece to hold the cover in place.

1,168,295. January 18, 1916. POLE ELEVATION INDICATOR; J. L. Fay and S. B. Way, Milwaukee, Wis. This device for determining the varying unknown length of different poles is comprised of an altimeter, embodying an indicator arm, and co-operating indicating characters. The characters represent numerically various total lengths which are in excess of, and in varying proportion to, the heights of the different objects sighted. The indicating arm is manually operated and provision is made for locking it in its adjusted positions.

1,168,312. January 18,1916. LOADING COIL AND CASE THEREFOR; S. B. Kent, New York; assigned to Western Electric Co. A toroidal loading coil having a magnetic core with a non-magnetic gap is described. The casing for holding the loading coil is of magnetic material and has a contour graduated as to distance from the coil, so that for a given value of hysteresis and eddy-current losses in the casing, due to magnetic leakage lines, the volume enclosed by the casing is substantially a minimum.

1,168,319. January 18, 1916. AUTOMATIC TELEPHONE EXCHANGE SYSTEM; A. E. Lundell, New York; assigned to Western Electric Co. In this semi-automatic system, the operator's set is common to the cord circuits each of which has electromagnetic means associated with it for automatically uniting the operator's set thereto whenever the cord circuit is connected to a subscriber's line. Mechanical switches are provided for extending a connection to a call subscriber's line and are controlled by a sending device. When the sending device has completed its operation, the operator's set is automatically removed from the circuit.

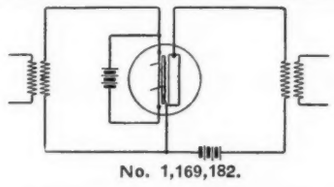
1,168,419. January 18, 1916. SELECTOR SWITCH; J. N. Reynolds, Greenwich, Conn.; assigned to Western Electric Co. In this selector switch for automatic systems, groups of contact-operating devices are provided, one for each of a series of a plurality of series of multiple-connected, incoming line terminals secured in a stationary bank. A second group of contact-operating devices is provided for a similar series of outgoing line terminals. Means are provided whereby the operation of a device of each group will cause engagement of the terminals of the corresponding series.

1,168,432. January 18, 1916. TELEPHONE; F. Seelau, Berlin-Wilmersdorf, Germany; assigned one-half to A. M. Newman, Berlin-Wannsee, Germany. In this device for recording messages transmitted by telephone, a responding roll with response impressions imprinted thereon, is provided and a responding sound box coacts with the impressions on the responding roll. The responding sound box is connected to the telephone line. A switching device is controlled by the responding sound box and a recording sound box provided for making message impressions on a recording roll. Means are actuated by the switching device to start the operation of a recording roll immediately the responding sound box reaches the end of the response impression, and for connecting the telephone line to the recording sound box.

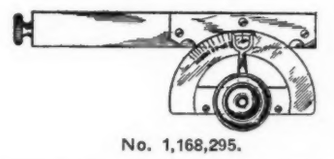
1,168,541. January 18, 1916. APPARATUS FOR WIRELESS TELEPHONY; E. B. Myers, New York. A condenser is placed in shunt between the accompanying ends of the primary coils of a pair of transformers comprised of a pair of primary and a pair of secondary coils at the sending station. A transmitter is connected in series between the secondary coils and provision is made for conducting an electric current to the primary coils.

1,168,894. January 18, 1916. TELEPHONE EXCHANGE TRUNKING SYSTEM; F. Lubberger, Chicago; assigned to Automatic Electric Co. Provision is made at a manual switchboard for extending a connection from a calling line to a trunk. Automatic means, controlled at the manual switchboard, are used for bringing the trunk into use while calling-substation-controlled means restore the trunk to a non-busy or idle condition and a signal is automatically given when the trunk is released. There are 73 claims to this patent.

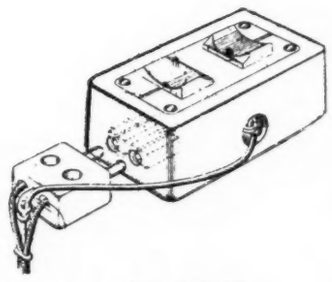
1,168,904. January 18, 1916. EXTENSION OR PARTY LINE TELEPHONE; R. Owens, Columbus, Ohio; assigned to First Trust & Savings Bank, Chicago. This system is designed for automatic exchanges. All of the telephones on a line have a common ground while a set of releasing springs is provided for each telephone, one spring in each set being normally connected with the common ground. A relay, common to all of the telephones, is provided with contacts to which the ground is connected with the releasing springs. There are as many grounded-energizing circuits for the relay as there are telepones. Each energizing circuit is controlled by its alloted telephone so that the use of any telephone energizes the relay and cuts off the ground from all of the releasing springs.



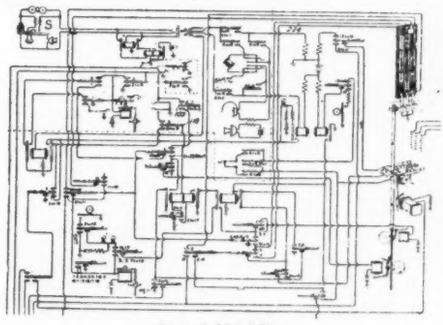
No. 1,169,182.



No. 1,168,295.



No. 1,170,017.



No. 1,168,319.

1,169,038. January 18, 1916. TELEPHONE RECEIVER; A. D. Jones, Philadelphia, Pa.; assigned one-fourth E. H. Cochran, Washington, D. C., and one-fourth to E. H. Fairbanks, Merchantville, N. J. The feature of this patent is the mounting of the diaphragm and armature. The diaphragm to which a permanently magnetized armature is secured but insulated from it, extends through a sectional ring. A resilient ring has its inner periphery split to receive the peripheral portion of the diaphragm while its edges engage the sectional ring.

1,169,102. January 18, 1916. MEASURED SERVICE TELEPHONE SYSTEM; T. G. Martin, Chicago; assigned to First Trust & Savings Bank, Chicago. In this measured service system for automatic exchanges, call-registering devices are allotted to the individual automatic trunk-selecting switch of each calling line. They are adapted for registering the call when the called subscriber answers. Other means, which include a differentially-wound relay individual to the calling line but normally disconnected therefrom under the control of the called subscriber, cause the device to register the calls.

1,169,182. January 25, 1916. THERMIONIC TRANSLATING DEVICE; A. McL. Nicholson, New York; assigned to Western Electric Co. This device consists of an evacuated vessel in which is an equi-potential cathode placed in close proximity to an input electrode. Arrangement is made for heating the input electrode from the outside and thereby rendering the cathode thermionically active.

1,169,251. January 25, 1916. ELECTRIC RELAY; J. F. Gaffney, Steelton, Pa. The feature of this line relay is the inclusion of a neutralizing coil in the lamp circuit which tends to produce an opposite polarity in the relay core. The resistance of the coil is insufficient to detract from the efficiency of the lamp circuit.

1,169,291. January 25, 1916. TELEPHONE SYSTEM; F. M. Slough, Elyria, Ohio; assigned to Garford Mfg. Co. In this selective party line system a plurality of current generators is located at the exchange and each is adapted to supply current to operate one of the ringers at one of the substations on the line. Means, including a local circuit at the exchange, control the application of current generated by the current generator mechanism to the telephone line controlled by manually operable switches and associated mechanism, one switch being provided for each of the current generators.

1,169,320. January 25, 1916. TELEPHONE EXCHANGE SYSTEM; W. W. Dean, Rochester, N. Y.; assigned to Garford Mfg. Co., Elyria, Ohio. In this automatic telephone system, a release magnet normally disabled is provided for the automatic interconnecting switch. A relay is connected to the interconnecting circuit through this switch so as to respond to the act of a called subscriber. A device responsive to the act of the calling subscriber operates to actuate the relay after a predetermined lapse of time only. The relay, when energized, acts to render the release magnet operative and to keep it operative until the final release and restoration of the switch.

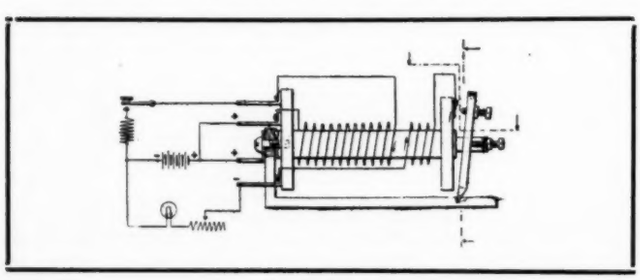
1,169,387. February 25, 1916. AUTOMATIC SWITCH FOR TELEPHONE SYSTEMS; K. E. Ericsson, Saltsjo-Storangen and G. W. Dahlstrom, Stockholm, Sweden. This telephone repeating system consists of two lines, each adapted to either send or receive. A switch relay and a line switch are provided for each line, the relay acting upon the line switch and arranged to switch each line so as to allow the speaking currents to flow in one or the other direction only. An auxiliary circuit is provided for each line and is connected to the other line circuit by means of a magnifier, thus to obtain magnified speaking currents in the auxiliary circuits. Intermediate means are placed between the switch relay of one line and the auxiliary circuit of the other for operating the relay of one line by the aid of the magnified currents from the magnifier of the other line, the auxiliary circuit being inductively connected to the relay.

1,169,422. January 25, 1916. THERMIONIC REPEATER; A. McL. Nicholson, New York. Western Electric Co. This thermionic repeater has its input electrode in the form of a plurality of wires with its cathode entwined about the wires.

1,169,736. January 25, 1916. TELEPHONE EXCHANGE SYSTEM; F. Schoenwolf, Chicago; assigned to Kellogg Switchboard & Supply Co. The feature of this automatic system is a selective switch controlled through a pair of relays connected in the line circuit. One of the relays serves to control the directive adjustment of the switch while the other relay controls the mechanism for restoring the switch to normal.

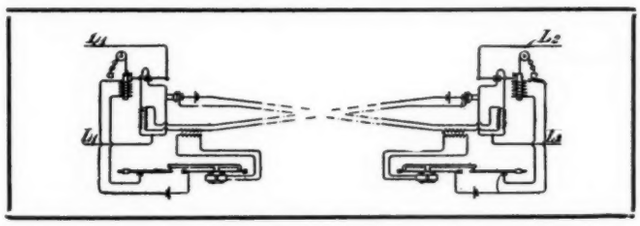
1,169,754. January 25, 1916. AUTOMATIC TELEPHONE SYSTEM; F. Schoenwolf, Chicago; assigned to Kellogg Switchboard & Supply Co., Chicago. This patent refers to a selector for automatic systems. It includes a traveling switch controlling member, adjustably responsive to directive impulses. An auxiliary switch member travels when the first switch controlling member travels and temporarily co-ordinates with it. Controlling means automatically transmit the secondary impulse after the adjustment of the first member is completed.

1,169,799. February 1, 1916. MACHINE SWITCHING TELEPHONE EXCHANGE SYSTEM; C. L. Goodrum, New York; assigned to Western Electric Co. This patent deals with means for operating the selector switch. A stepping relay is associated with the automatic selector switch and is operated by a sender. A slow relay is controlled at the front contact of the stepping relay and a back contact of the slow relay controls a release circuit. A circuit of a stepping magnet is controlled by the stepping relay, while a slow-acting controlled magnet for a steering switch is adapted to release it upon its de-energization. The circuit for the slow-acting controlled magnet is controlled at a back contact of the stepping relay.



No. 1,169,251.

1,169,800. February 1, 1916. MACHINE SWITCHING TELEPHONE SYSTEM; C. L. Goodrum, New York; assigned to Western Electric Co. Operation of an automatic finder switch is the feature of this patent. The finder switch to which the telephone lines are multipled is driven by a stepping magnet. The circuit of a release magnet for the finder includes the armature and back contact of the stepping magnet and also a resistance. This circuit is adapted, when closed for a predetermined interval, to energize the release magnet thus releasing the finder.



No. 1,169,387.

1,169,890. February 1, 1916. SELECTOR SWITCH; L. Von Nagy, Plainfield, N. J.; assigned to Western Electric Co. Structural details of the contacts and operating means are given in this patent. A series of stationary contacts is arranged to be traversed by each brush of a plurality of multiple-connected brushes, tension devices normally maintaining the brushes in a position to traverse their series of contacts. Devices on a brush-selecting rod co-operate with the brushes to rotate all, except a selected one, to an inoperative position.

1,169,894. February 1, 1916. AUTOMATIC TELEPHONE SYSTEM; H. G. Webster, Chicago; assigned to Kellogg Switchboard & Supply Co. This system includes a selector switch having contact sets arranged in groups and a primary magnet to operate it to select a group. A secondary magnet operates the switch to select a contact set of the selected group. Other means operate the secondary magnet to effect restoration of the switch. Provision is made for transmitting currents from a controlling station to operate and release the switch.

1,170,017. February 1, 1916. FAULT LOCATOR FOR ELECTRIC CABLES; H. M. Stoller, New York; assigned to Western Electric Co. This is designed especially to use in locating troubles in telephone cables. It comprises a U-shaped magnet core and a winding on each leg thereof. The core has depressions in its pole faces which are adapted to fit the surface of the cable.

1,170,323. February 1, 1916. TELEPHONE SIGNAL OPERATING DEVICE; F. E. Phillips, Wells, Maine. The feature of this device is the provision of a relay which operates, when the receiver is removed from the hook, to close an electric light circuit thus lighting a lamp.

1,170,356. February 1, 1916. TELEPHONIC APPARATUS; H. Smith, Copenhagen, Denmark; assigned to G. Kiorboe, Copenhagen. A telephone transmitter is described in this patent. A main chamber extends from a vibratable diaphragm to a fixed contact. A movable wall of insulating material is located near the diaphragm so as to form a reserve chamber communicating with the main chamber at points remote from the diaphragm and the fixed contacts. Carbon granules completely fill the main chamber and at least partially fill the reserve chamber.

1,170,421. February 1, 1916. RECEIVER HOLDER ATTACHMENT FOR TELEPHONES; W. A. Delano, New York and E. R. Belmont, Hempsted, N. Y. This device consists of a clamping ring attached to the transmitter having a pair of jaws extending laterally from it to hold a receiver while telephone is in use.

1,170,670. February 8, 1916. ELECTROMAGNET RELAY; E. A. Reinke, Rochester, N. Y.; assigned to Stromberg-Carlson Telephone Mfg. Co. This relay has an L-shaped pole piece having one arm secured to one end of the magnetic core. The other arm of the pole piece extends substantially parallel with the core and has on its end one part of a rocking joint. The armature has a corresponding part of a rocking joint engaging the part on the pole piece, the rocking parts overlapping to form a joint of low magnetic reluctance. A clip holds the halves in co-operating relation. At the opposite end of the core, a pole piece is secured which has a flattened extremity adjacent to the free end of the armature.

1,170,882. February 8, 1916. AUTOMATIC SWITCHING DEVICE

THE LATEST IN AUTOMATICS

WHY should you use

THE RELAY AUTOMATIC TELEPHONE SYSTEM

BECAUSE

It Is Simple

The complicated apparatus and circuits are reduced to a minimum, the "searchers" and selectors, being common to a group of lines, are only in use during the actual setting up of the connections.

It Is Flexible

Circuit changes can be made readily to meet particular needs.

It Is Rapid

Owing to the rapidity with which relays work, many difficulties experienced with automatic systems are overcome. Hunting over large groups of trunks is practically instantaneous.

It Requires Little Attention

The relays are of similar type to those used in common battery manually operated systems, and experience with these has proved that after careful adjustment they require little further attention.

It Has No Wiping Contacts

The relays make direct contact to build up a required circuit, and there is no action corresponding to wipers rubbing over nine intermediate contacts to reach the tenth, as on electro-mechanical switches.

It Will Live Long In All Climates

The system being built up entirely of relays, there is little wear. Relays can be protected readily from dust and damp, as they can be covered conveniently in small units. They are therefore most suitable for extremes of climate conditions.

If you adopt it

THE RELAY AUTOMATIC TELEPHONE SYSTEM WILL SAVE YOU MONEY

The Relay Automatic Telephone Company, Ltd.

C/o Marconi Wireless Telegraph Company of America, Woolworth Building, New York.

Please tell the Advertiser you saw his Advertisement in TELEPHONY.

FOR TELEPHONE SYSTEMS; L. de Forest, New York. In this radio telephone system, voice-controlled means automatically connect the transmitting circuit to an antenna, the connection being automatically broken when transmission ceases.

1,170,909. February 8, 1916. AUTOMATIC TELEPHONE SYSTEM; D. S. Hulfish, Toronto, Ontario, Canada, assigned to Canadian Independent Telephone Co., Toronto. The selecting switch of this automatic telephone system has two movements of selection and provision is made for indicating within the switch a stop position in each movement. The means for accomplishing the second movement include a slow-acting relay placed in series with the mechanism for accomplishing the first movement.

1,171,166. February 8, 1916. LIGHTNING ARRESTER; L. S. Brach, New York. A block of relatively low conductive material, having oppositely disposed and substantially parallel faces, is interposed between the line and the ground connection. A pair of plates of conducting material, one engaging each of the faces, has parts extending substantially straight therefrom so that their other ends are spaced apart to provide an air gap in multiple with the interposed block of material. At least one of the plates is bendable so that the outer ends of the plates may be moved toward or away from each other for varying the resistance offered by the air gap and consequently for varying the maximum load to be placed upon the interposed block of material.

Condensed News Reports

Officers of Companies Are Urgently Requested to Forward to Us Promptly All Financial and Other Statements as Soon as Issued and Any Items of Interest as to Their Plants and Systems

Personal.

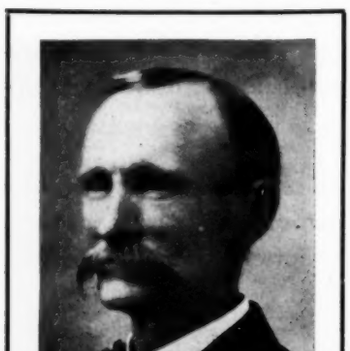
A. S. METZNER, general manager of the Automatic Telephone Co., of Key West, Fla., has resigned and Eugene W. Russell, secretary of the company, has been elected to fill his place.

CLAUDE ATTRIDGE, of the Minneapolis, Kan., exchange of the United Telephone Co., of Abilene, has been promoted to the management of the company's exchanges at Gypsum and Kipp, with headquarters at Gypsum. Mr. Attridge has been in the employ of the United Telephone Co. for the last 12 years.

F. R. HILLHOUSE, division manager of the Union Telephone Co., New Castle, Pa., was one of the organizers of the American Club in Toronto, Ontario, Canada, whose club building was recently burned. The club was founded in 1913, its object being to provide a rendezvous for the 35,000 American citizens who make their homes in Toronto. Mr. Hillhouse was a member of this club until a year or two ago when he moved to Newcastle.

Obituary.

BYRON F. WASSON, of Clinton, Ill., well known in Independent telephone circles, and until last September president of the National Telephone & Electric Co., of Clinton, Ill., of which he was founder, was called to the great beyond on February 13. On Friday afternoon, February 11, Mr. Wasson was suddenly stricken with apoplexy at his home in Clinton, and on the following Sunday he passed away.



Byron F. Wasson.

As a tribute to the memory of Mr. Wasson, the following resolutions were adopted by the Illinois Independent Telephone Association and the McLean & Dewitt County Independent Telephone Association:

"Whereas, B. F. Wasson, of Clinton, Ill., was one of the pioneers in the Independent telephone movement in the United States, having been identified with such movement almost from its inception, and having contributed much to the solution of the many problems growing out of the same during the early years of the development of the Independent telephone business of this country, and

Whereas, on or about the 13th day of February, 1916, the said B. F. Wasson was called to his reward after having devoted a lifetime of service to the community in which he lived, and having contributed much to the cause of the Independent telephone industry, and

Whereas, we are desirous of expressing in some fitting manner our appreciation of the services rendered by the said B. F. Wasson to the cause that is nearest our own hearts.

Therefore, be it resolved by the Illinois Independent Telephone Association and the McLean & DeWitt County Independent Telephone Association, that in the death of the said B. F. Wasson we have lost one of our most faithful and efficient co-workers and truest and best friends,

Resolved further, that our esteem and heartfelt sympathy be extended to his bereaved wife and family.

Resolved further, that a copy of this resolution be forwarded to Mrs. Wasson and other copies be furnished the telephone journals and local press with the request that the same be published."

Mr. Wasson was born in Gibson county, Ind., in June, 1855. He received his education at the Union Christian College and the Kansas State Normal College, graduating from the latter with an A. B. degree, after which he taught school for some 15 years. At that time the Bell patents expired and Mr. Wasson became interested in the telephone business. He was active in building and promoting telephone exchanges in many Illinois towns, including Bluffs, Winchester, Jacksonville, Roodhouse, Lincoln, Waynesville, Clinton, Farmer City, Mansfield and others. In 1904 he organized the National Telephone & Electric Co., of Clinton, Ill. He was president of this company until he retired from active telephone affairs, last September.

Mr. Wasson had been a member of the National Independent Telephone Association since its formation and had also been a very active member of the Illinois state association, having assisted in drawing up the constitution of the latter association.

The resolutions adopted by the Illinois state and county associations indicate the position attained in the telephone field by Mr. Wasson.

Elections.

ALBANY, CAL.—At the annual meeting of the Albany Telephone Co. the following officers were re-elected for the ensuing year: President, H. R. Senior; vice-president, W. E. Rowland; secretary, C. E. Peck; treasurer, C. A. Olds; directors: S. J. Damhoff, Ed. Coffey, John Sharer, John Beeken, J. W. Dinneen, C. S. Rowland, and W. E. Rowland.

MARSHALL, ILL.—The annual meeting of the Mutual Telephone Co. was held recently. The officers elected are as follows: Adam Imle, president; Hester Shipe, secretary and treasurer; Dan Neff, Will Fraker, and Harry Maurer, directors.

RED OAK, IOWA.—The annual meeting of the representatives of the Red Oak Mutual Telephone Co. was held recently for the purpose of electing directors of the company. Those elected were R. Iddings, Geo. Bishop, Wm. Gilmore, A. J. Anderson and T. C. Brown.

RICEVILLE, IOWA.—The Farmers' Telephone Co. held its regular annual meeting. The old board was re-elected, viz., C. F. Bartlett, city; Dr. F. W. Lee, north district; R. C. McConnell, west; Thomas Kakac, east, and Peter Reicherts, south.

ENSIGN, KAN.—The stockholders of the Ensign Telephone Co. held a meeting recently. J. D. Williams was elected president; G. H. Culver, C. A. Houser and H. C. Adams directors. The capital stock was increased from $3,000 to $30,000.

BORDEN, KY.—At the eleventh annual meeting of the Farmers Union Teelphone Co. George D. McCutcheon was elected president and Dennis McKinley, vice-president.

BEAVER, MINN.—The Whitewater Valley Co. held its annual meeting recently. W. Gage was re-elected president, and Edward Emerson, secretary and treasurer.

BELLE PLAINE, MINN.—The Citizens Home Telephone Co. held its annual meeting recently and elected the following officers for the ensuing year: P. Hessian, president; J. F. Grosser, vice-president; J. A. Schoell, secretary and treasurer; J. H. Fideldy, manager. The officers, together with E. Busz-

There's a Better Way—

"It's faster, too"

Will you answer these questions?

Motor Truck Department
Telephony Publishing Co.
Monadnock Block, Chicago

Name .....

Address .....

We use.....horses and.....wagons
(State number)
at present.

Our territory covers.....miles.

Are you interested in motor trucks?

.....

Any particular make?.....

We have.....electric current
(Yes or no)
on our premises.

man, constitute the board of directors. The company now operates 169 subscribers' stations in town and 268 on rural lines, making a total of 437 stations.

NORTHFIELD, MINN.—The Northfield Telephone Co. held its annual meeting. Officers were re-elected, the only change being the election of Frank Harkness as vice-president. The officers and directors are now as follows: President, John Pennington; vice-president, Frank Harkness; secretary, Nels Parson; treasurer, H. O. Dilley; H. C. Senn, H. F. C. Albers, E. J. Haugen, A. E. Cleland, Geo. Simpson.

LUCKEY, OHIO.—At the annual meeting of Webster Telephone Co., in Webster township hall recently, the following officers were elected: W. L. Hoelter, president; J. D. Philo, secretary-treasurer; A. R. Metzger, J. A. Stebel, W. L. Hoelter, G. F. Claus, Aaron Sargen and Milo Jameson, board of directors.

MILLERSBURG, OHIO.—At the annual meeting of the stockholders of the Millersburg, Wooster & Orrville Telephone Co. the following board of directors was unanimously elected: F. L. Beam, Mt. Vernon; C. M. Lovett, Wooster; H. W. Cary, Millersburg; D. F. Griffith, Orrville; T. E. Steiner, Marshallville; R. M. McCoy, Wooster; Otto Troutman, Shreve; H. M. Rudy, Millersburg, and A. N. Brenneman, Orrville, Ohio. Immediately following the stockholders' meeting, the board organized as follows: President, C. M. Lovett, Wooster; vice-president, F. L. Beam, Mt. Vernon; treasurer, H. W. Cary, Millersburg; secretary-manager, M. M. Herron, Millersburg; and counsel, Charles Cary, Millersburg. At the present time the company has more than 6,000 telephones in service in its various exchanges.

WINONA, OHIO.—The directors of the Winona Central Telephone Co. held a meeting recently and elected the following officers for the coming year: President, J. E. Walton; vice-president, Frank Coppock; secretary, Joshua Jenkins; manager, Dillwyn Stratton; assistant manager, Joshua Brantingham.

LEBANON, PA.—The annual stockholders' meeting of the Ono & Lebanon Rural Telephone Co. was held recently. The board of directors elected to serve for the ensuing year are J. A. Reinbold, C. H. Wengert, Anson Wentling, J. G. Bohn, and J. A. Brandt.

SAXONBURG, PA.—The Saxonburg Telephone Co. held its annual meeting at which new officers and directors were elected for the ensuing year. The following officers elected: President, Ed. C. Moore; treasurer, H. G. Koegler; secretary, T. A. Hays. The following is the board of directors: F. C. Moore, Dr. L. H. Stepp, W. H Knoch, W. T. Freehling, John T. Simpson, George H. Bachman and W. T. Ekas.

TRENTON, TENN.—The stockholders of the Gibson County Telephone Co. met in semi-annual meeting recently. R. R. Collins was elected president; G. A. Davidson, vice-president; E. Greer, secretary-treasurer.

CENTRALIA, WASH.—Theodore Hoss, Martin Holman and W. J. Lemmon, C. G. Morris and T. I. Dodge were elected directors of the People's Telephone Co. at the annual meeting of its stockholders. The directors will later elect officers. Mr. Hoss is president of the company.

EASTMAN, WIS.—The annual meeting of the Western Crawford County Farmers Telephone Co. was held recently and the following officers elected: President, C. L. Lathrop; vice-president, Henry Trautsch; secretary-treasurer, T. O'Neil; directors, P. J. Welsh, E. E. Trautsch, J. Becwar, George Ertel and Peter Klema.

EDEN, WIS.—At the annual meeting of the Eastern Fond du Lac County Telephone Co., four new directors were elected: George Nourse, John Graham, Wilbur Adams and Gus Rohls. These officers were chosen: President, Gus Rohls; vice-president, Thomas Timblin; secretary, George Nourse; treasurer, George Flood; general manager, John Rohls.

Miscellaneous.

HAWICK, MINN.—The North Star Telephone Co. has been dissolved and the shareholders of each line have organized into independent companies. Recently the board of directors of the five lines met at the Hawick central and divided up the property, settled up all the business connected with the old management.

LATHROP, MO.—Rogers Brothers, owners of the Clover Leaf Exchange at Lathrop, Mo., have sold to D. G. Gray the property of the Clover Leaf Telephone Exchange.

HUNNEWELL, MO.—C. E. Tracy, sold the Hunnewell Telephone exchange to Fred Hawker, who has full charge of the business.

WE started to "Look Ahead" eighteen

years ago and we still have a big future in mind for you as well as for ourselves; so please remember when buying, every one of Cook's products has a big future built right in it before our name goes on — it will mean more to both of us.

Here's a list of our specialties that we would like to sell to you:

- Connectors, for wire sleeves
- Electric Soldering Irons
- Fuse Strips, Fuse and Carbon Strips } For Pole House Construction
- Fuse Wire
- Guy Clamps
- Intermediate Distributing Frames
- Lightning Arresters
- Line Fuses, all types
- Main Distributing Frames
- Mica Fuses (Cook's type)
- Marlin Cable Hangers
- Messenger Hangers
- Messenger Splices
- Protected Pole Cable Terminals
- Switchboard Protectors
- Subscribers' Station Protectors
- Test Connectors
- Toll Line Arresters
- Unprotected Pole Cable Terminals
- "U" Bolt Clips
- Wall Type Distributing Frames
- Wire Sleeves, steel and copper
- Etc., Etc., Etc.

—every one is described, priced and pictured in our "Brown Catalog"

Frank B. Cook Co.

326 W. Madison Street
Chicago Illinois

"The World's Our Market"

Type S-16
Cover Up